

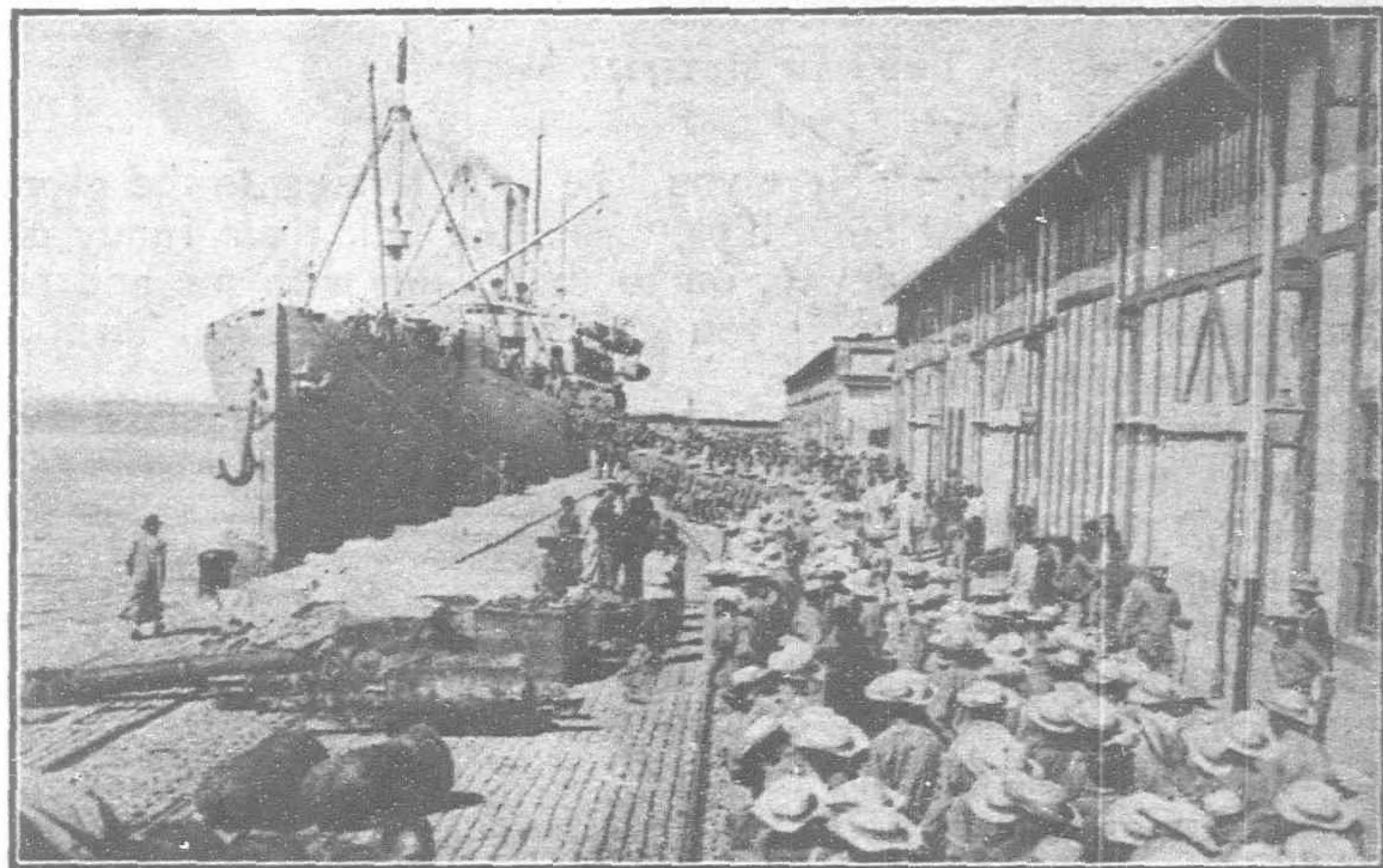
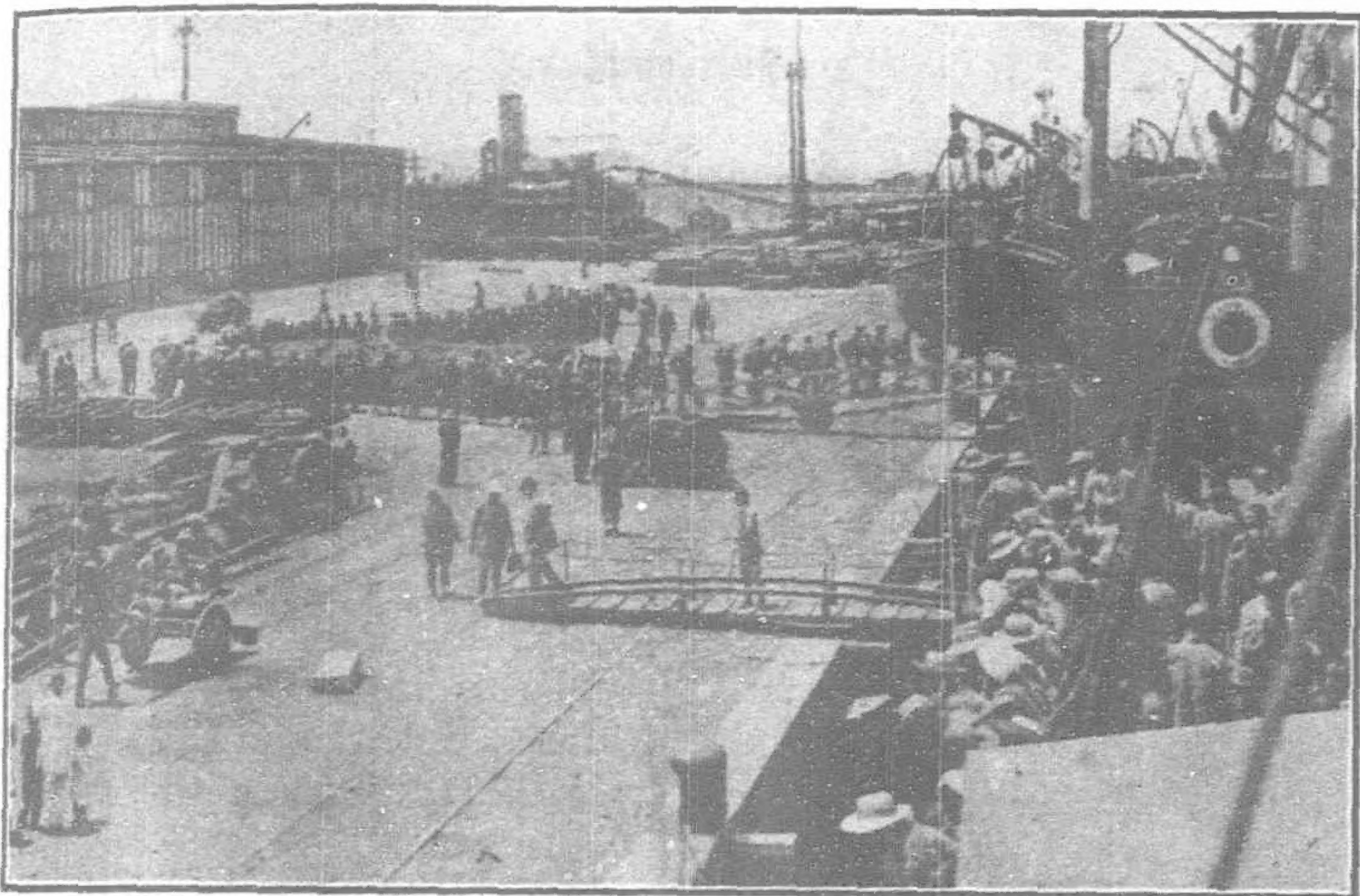
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CHINESE LABORERS EMBARKING FOR FRANCE

The Story of the Chinese Labor Corps

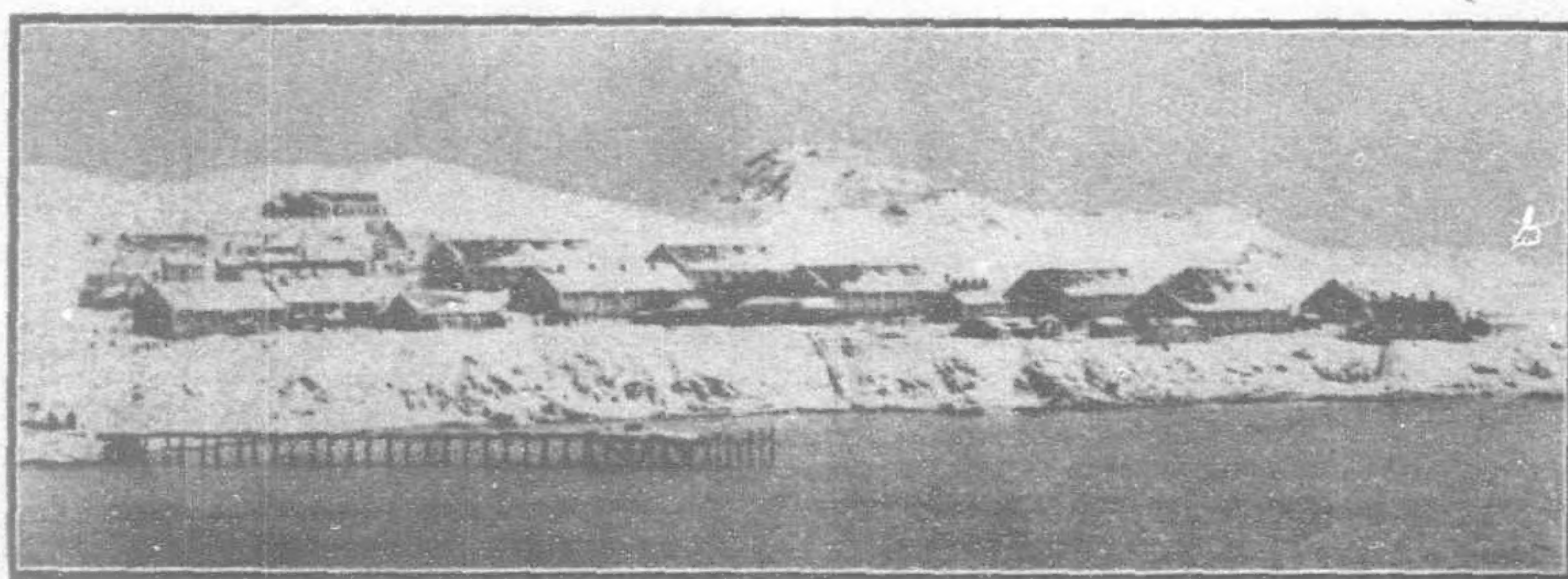
A Highly Efficient British Organization to Protect the Personal and Financial Interests of the Chinese Coolies Laboring Behind the Lines in France

[BY B. MANICO GULL]

On a morning in May, 1917, there lay at anchor alongside the quays of a northern French port a cross-channel steamer that had never attracted so much attention before in her life. She had been watched with curiosity as she steamed into the harbor, for she was obviously very crowded and nobody could make out what her passengers were; clearly they were in uniform of some sort, for they all looked the same, but the color was not khaki nor was the headgear recognizable. Here and there, certainly khaki was to be seen but only in the very lightest flecks, while in the middle of the throng were half a dozen civilians in caps, tweed suits, and squash hats. As the vessel neared and finally anchored by the quay, curiosity gave place to amused astonishment, for ranged round her decks in a broad solid band four deep were a thousand Chinese coolies, whose bronzed faces, some as immobile as carved wood, others alight with laughter, in brown felt caps with ear flaps of gray fur.

Bulging canvas knapsacks dyed a dark brick red, and blue cotton jackets and trousers added a touch of color altogether new to a scene stereotyped by nearly three years of war. The immediate effect was to bring everybody on the quay to the water's edge. Groups of British and French officers merged together, and behind them came Tommies and Poilus, all amused and interested by this latest addition to the allied resources. The groups widened and thickened into a small crowd and, as the Chinese chattered, gesticulated, and pointed at the sartorial variety which they saw above them, the bonds of military discipline slackened and laughter rippled and burbled in crescendo. Presently somebody raised a cheer. The Chinese responded quickly and in a few moments hundreds of hands were waving and clapping, and the noise of launches and shunting engines was drowned in hurrahs.

The skipper of the vessel, a little square-built man with a jolly face, caught the infection of the moment and felt that it

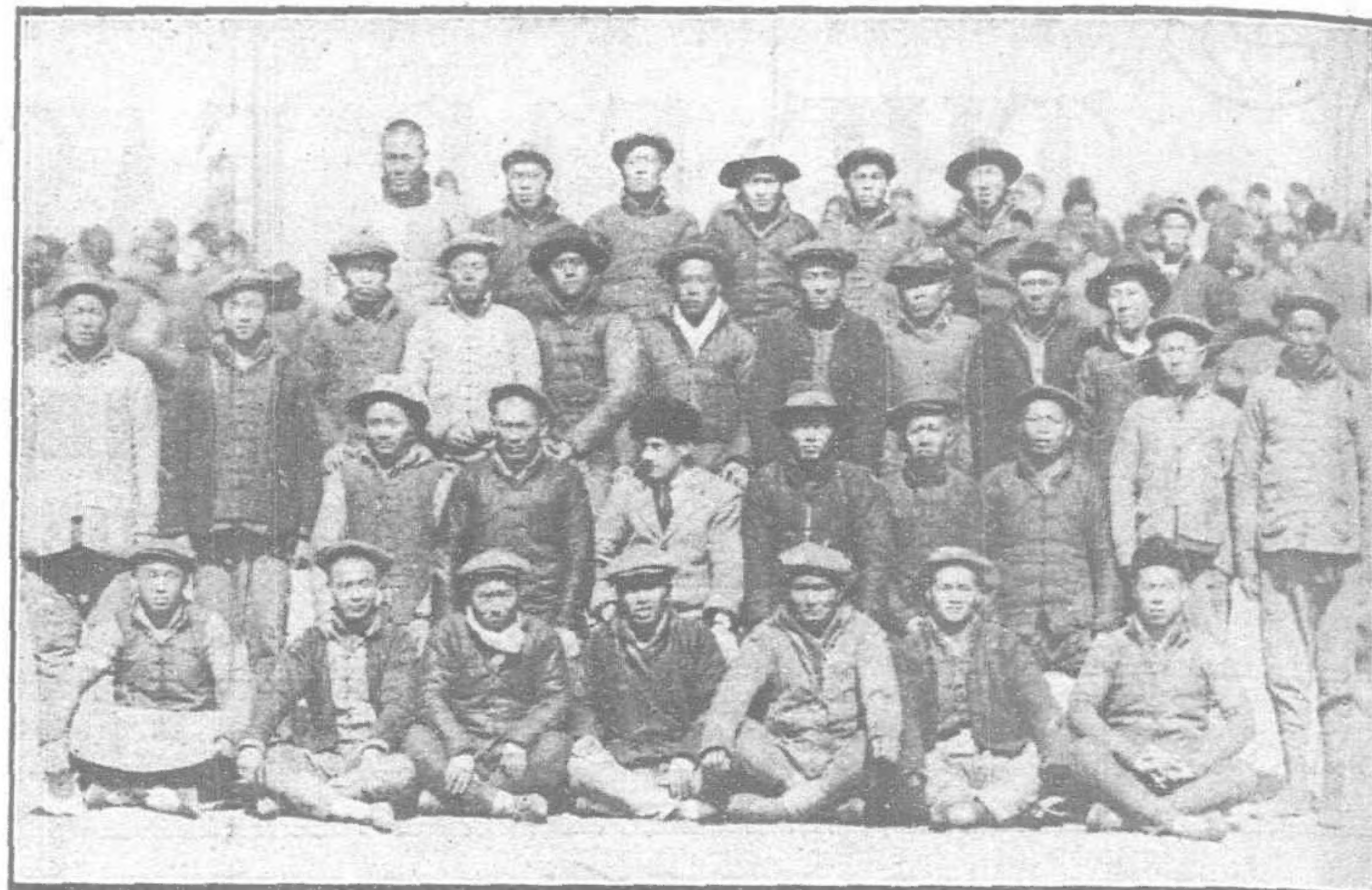


THE RECRUITING DÉPÔT



Photo by B. M. Gull

THE RAW MATERIAL ARRIVING



SKILLED MEN

called for a speech. "Here you," he said, turning to the group of civilians who stood amidst ships, "you can talk their funny old lingo; come up, one of you, on to the bridge with me and tell 'em I wish 'em luck." "Up you go," said a well-known Tientsin man to one of his companions, "help the skipper to do the polite." "Hold on for a moment," the latter broke in; "let me get a megaphone first. I like people to hear what I've got to say when I make a speech."

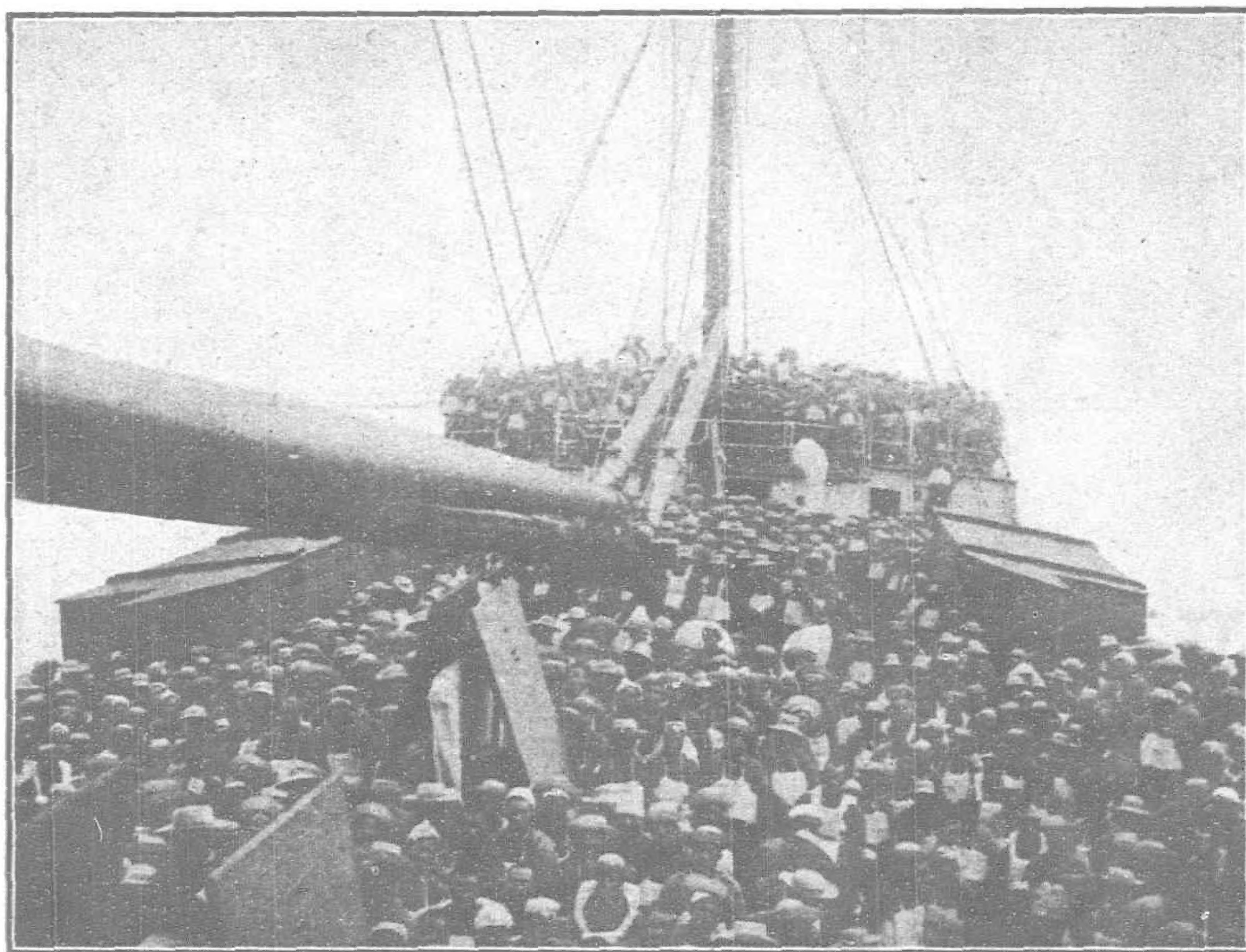
He disappeared and returned a moment or two later with a megaphone big enough to fill the Albert Hall. "Now then," he said, thrusting it into the hands of his interpreter, "follow me." The two mounted to the bridge, reached the center and faced the bows, the chatter of the coolies below snapping off into silence as they saw what was happening. "Now tell your lads," said the skipper, "that I'm mighty glad to have brought them over, that I hope they'll have a good time in France, do a good job of work, and go back to their homes full of money and health and strength. Add any fringes of your own that you like."

As a witness of the scene, I should hardly like to affirm that the words which came bellowing through the megaphone could

not, on the spur of the moment, have been improved upon. But translation, after all, is a matter of effect and there was no question whatever that the Chinese "caught on" to the spirit of the message. A roar of applause and laughter swept over the fore part of the ship and was echoed by those aft as the speaker turned and addressed them too. "Thank you," said the skipper, as the megaphone was lowered, "you did that mighty well. They look a fine, hefty crowd, and I hope they'll make the Bosche sit up."

Nearly a year has passed since this little episode in the history of the second contingent of coolies to leave Weihaiwei and there are now thousands upon thousands of Chinese working hard behind the lines all over northern France. Their emigration will take its place in history certainly as one of the most picturesque and interesting, possibly as one of the most important aspects of the great European War. For never

before this war has the East provided the West with man power on anything approaching the same elaborate scale. It has hurled itself against the West many times, compelled the West to unite more than once and, of course, colored European

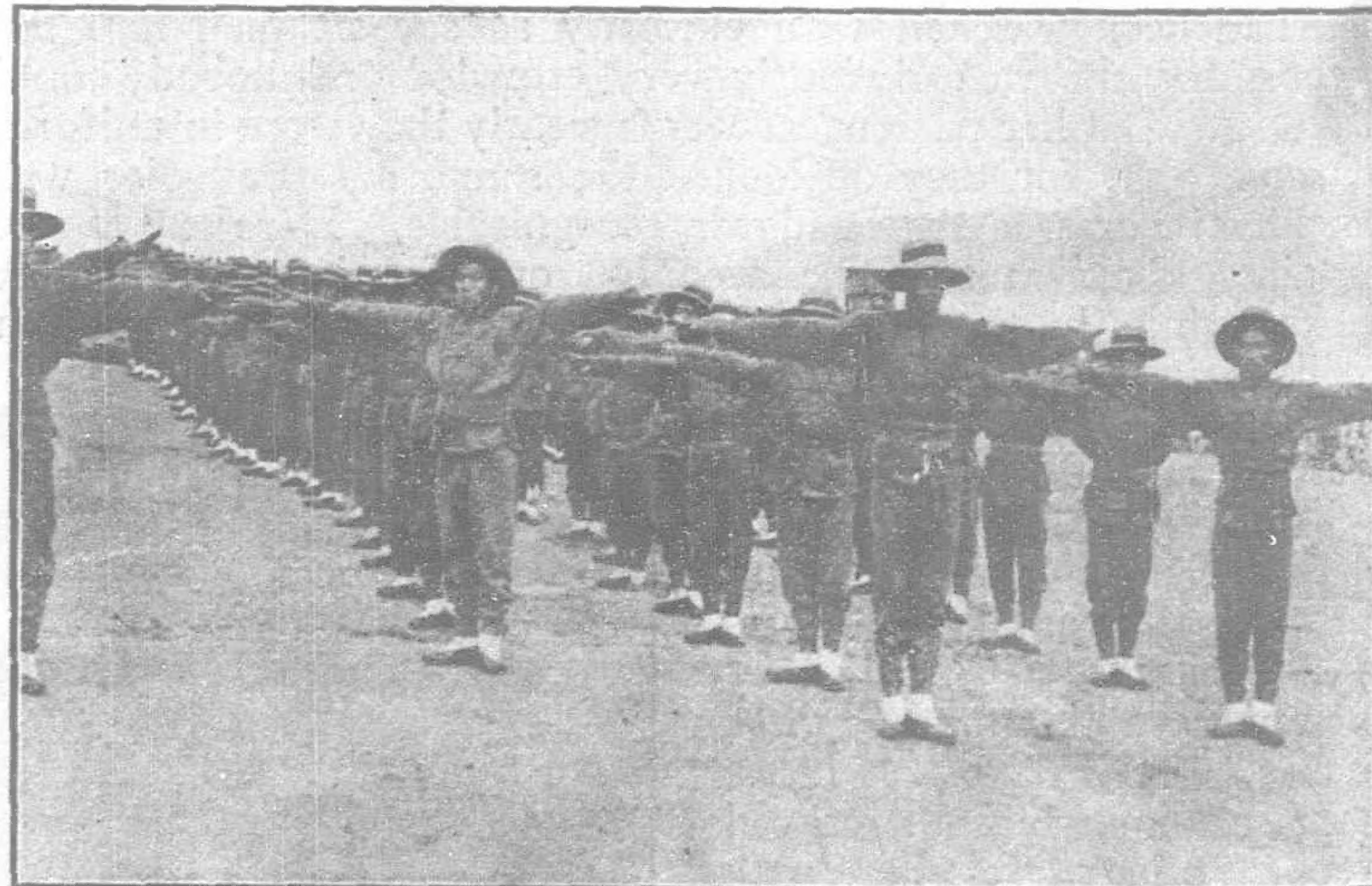


EACH WITH A LIFE BELT

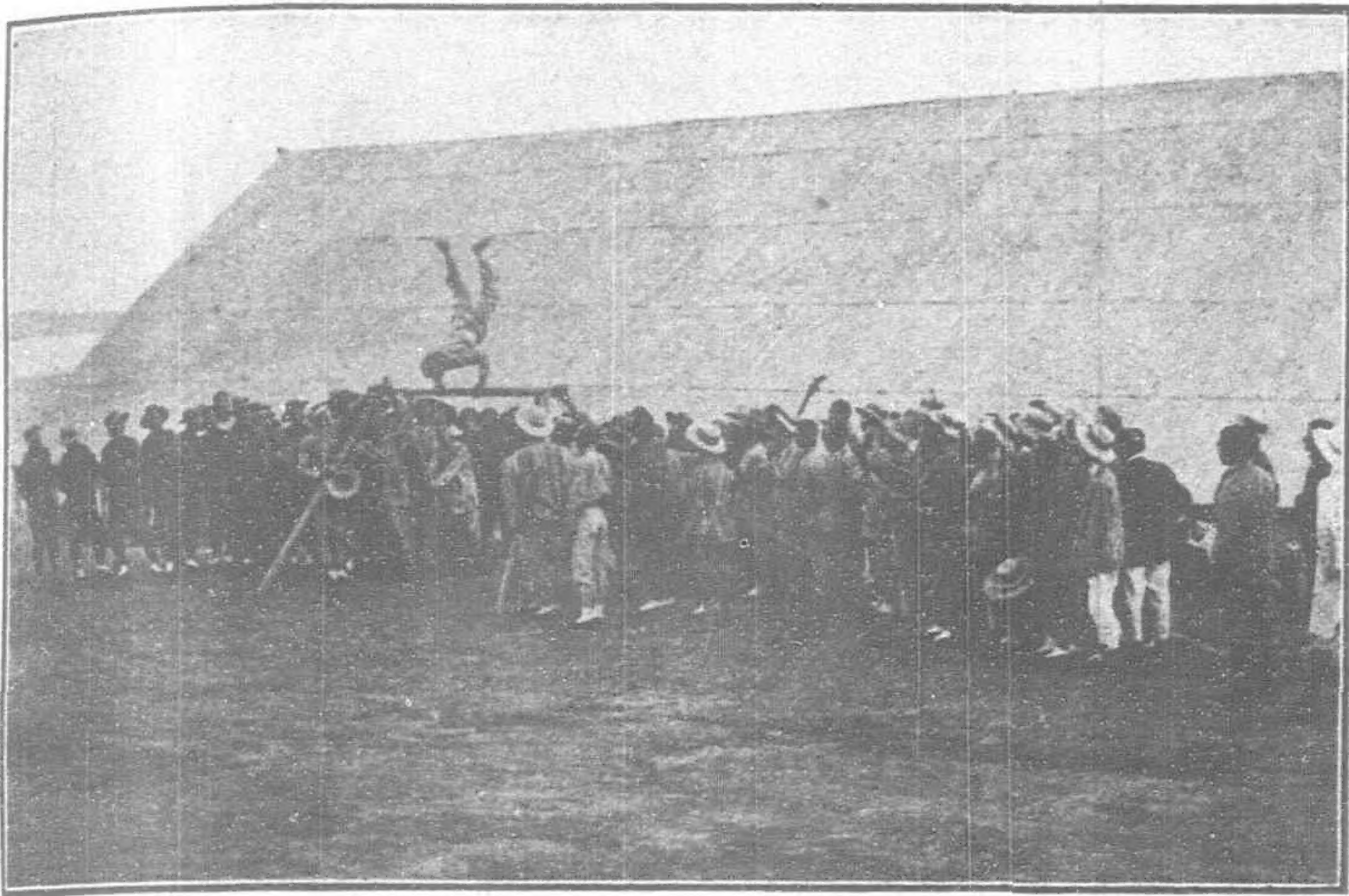


Photo by B.M.Gull

IN THE ROUGH



THE FINISHED PRODUCT



THEY TAKE KINDLY TO THIS

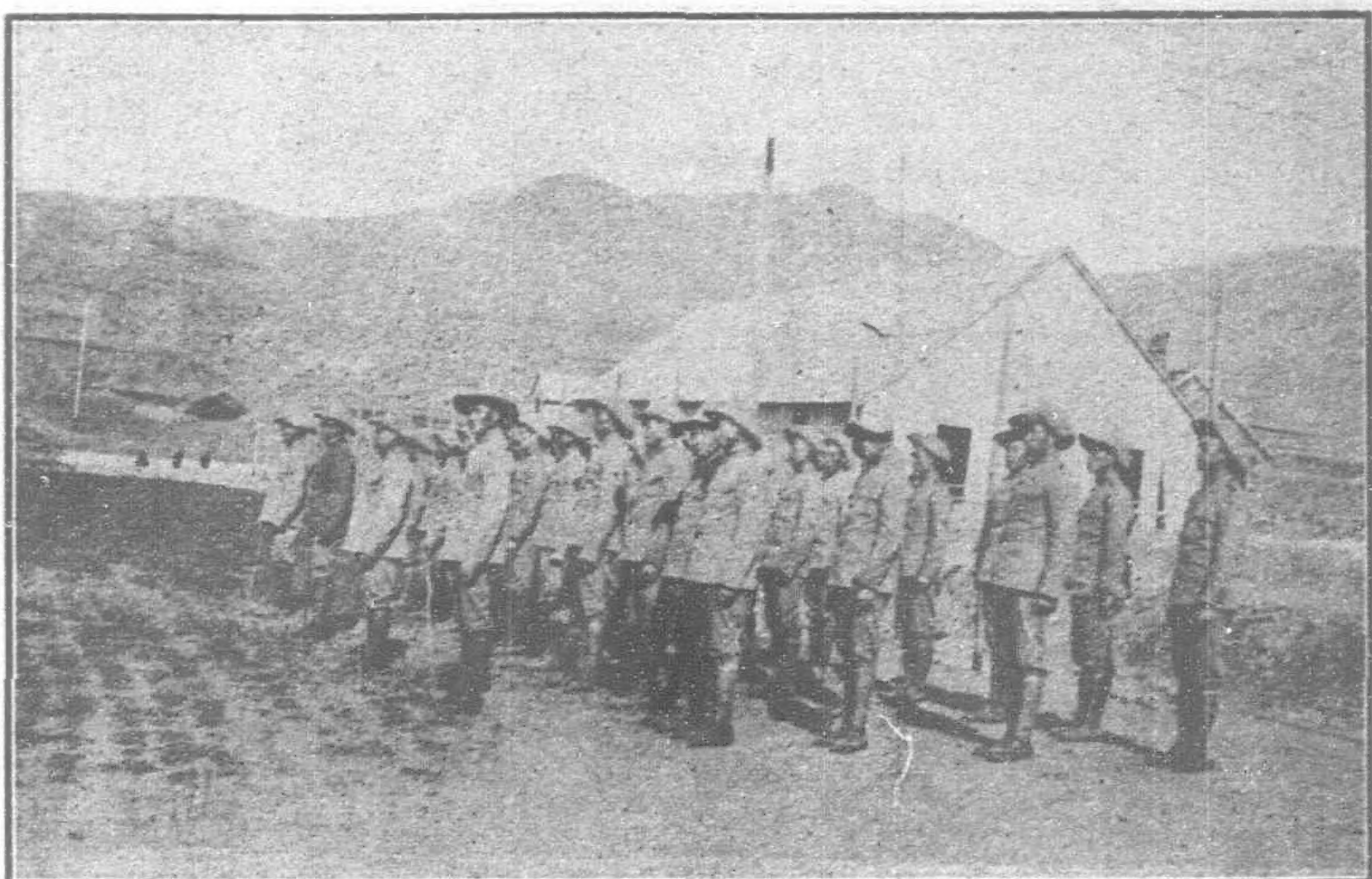


Photo by B. M. Gull

THE DÉPÔT POLICE

life and thought in a variety of ways, but it has never before, practically the whole of it simultaneously, taken sides in a huge European conflict. And the specially interesting characteristic of China's participation in this unique development is that (at the time of writing at all events) in a conflict waged for the extermination of militarist ideals she is engaged industrially only. For centuries possessed, in contrast with Europe and other parts of the East, of a thorough-going anti-militant philosophy, she is pouring into the maelstrom an element essentially pacific. What the ultimate effects of this will be, nobody would care to prophesy, partly, no doubt, because it is the immediate future in which everybody is interested, and not the ultimate results.

As soon as the Germans, who spied zealously, got wind of the scheme, they at once began a propaganda of lies and intimidation which arrested the movement and for a short time, even, threatened to check it altogether. Neither the Chinese Government nor the Chinese peasantry knew the Bosche in those days for the unscrupulous mischief maker that he is and while the former in its desire to remain neutral felt for the moment a little nonplused and unable to decide on its attitude towards the emigration scheme, the latter, not unnaturally found occasion for pause in the artistically blood-curdling falsehoods which the German Legation, taking advantage of a trumpety misunderstanding at Tientsin, sedulously disseminated.

But if it takes some time for truth to catch up lies, they do not prevail easily or for long against an established reputation for square dealing. The quality of the Briton's word was known and respected for many years before the Teuton began peddling his imitation wares; and in spite of all that German duplicity could do, the first contingent of over a thousand coolies left Weihaiwei on January 18, followed a month later by the one whose arrival in France we have just witnessed. And in the meantime, the British Consul at Tsinanfu had begun very successfully to tap that part of the Shantung area. Some of the men of the second contingent arrived at Weihaiwei via Tsingtao, and for some time after a steady flow of coolies reached the Dépôt by that route. In March, after several contingents had left

Weihaiwei, it was decided to make Tsingtao a direct port of shipment. Thus a second Dépôt came into existence at Tsangk'ou, some miles from Tsingtao, and finally when China declared war, the whole country became the potential source of a practically unlimited labor supply.

The following table gives a bird's-eye view of the financial conditions on which labor is recruited:

Position	Duties	In Europe Francs per day	In China \$ per month
Coolies ...	Labor ...	1.00	10.00
Under Gangers ...	In charge of Section of 14 men ...	1.25	10.00
Gangers ...	In charge of 4 Sections as above ...	1.50	15.00
English-Speaking Foremen	In charge of 4 Gangers ...	2.00	20.00

Skilled labor is awarded even better rates than these. For pay purposes it is graded into three classes of which the following are examples:

	In Europe Francs per day	In China dollars per month
Ships' carpenters, Fitters' mates, Blacksmiths, Strikers ...	1.50	13.00
Skilled smiths, Riveters, Motor boat drivers, Marine engineers ...	2.00	20.00
Skilled fitters ...	2.50	30.00

While at the Dépôt and on the voyage to France, skilled laborers are accorded special privileges. Coming as they do from a class superior to that of the coolie, special pains are taken to maintain such distinctions as they have a right to expect. For example, they have special food, special quarters, and distinctive uniforms. Every laborer, whether skilled or unskilled, is given clearly to understand first and foremost that he is not to be employed in military operations; that his pay in Europe is concurrent with and additional to his pay in China, and that while the former does not begin until his arrival at the place of employment, the latter commences from the date of embarkation. He is told further that his engagement is for three years but terminable by his employer, the British Government, at six months' notice at any time after one year; that he will be called upon to work ten hours per day on railways or roads or in factories, mines, dockyards, fields, forests, or any other sphere of a nonmilitary character; that he will

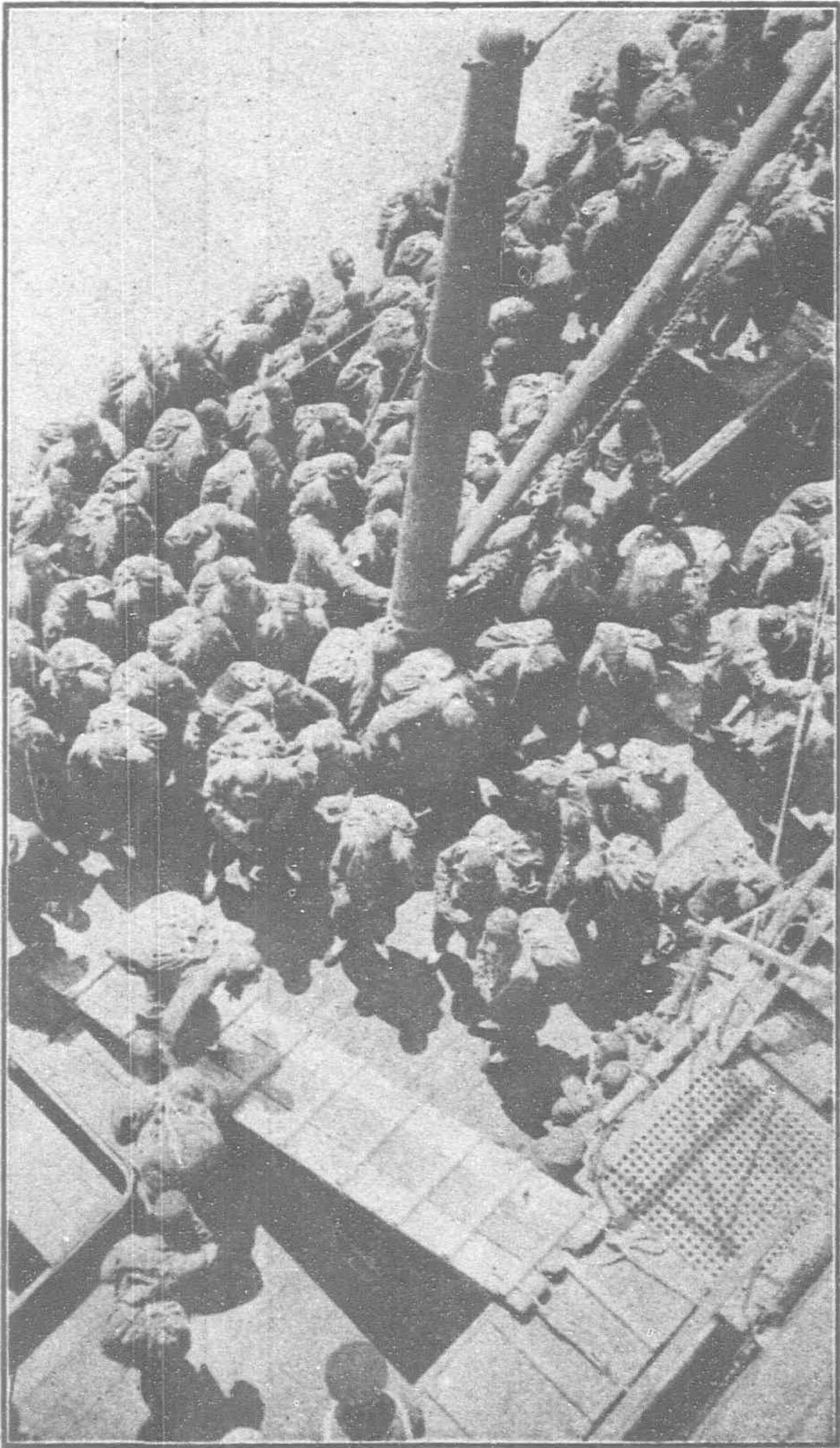
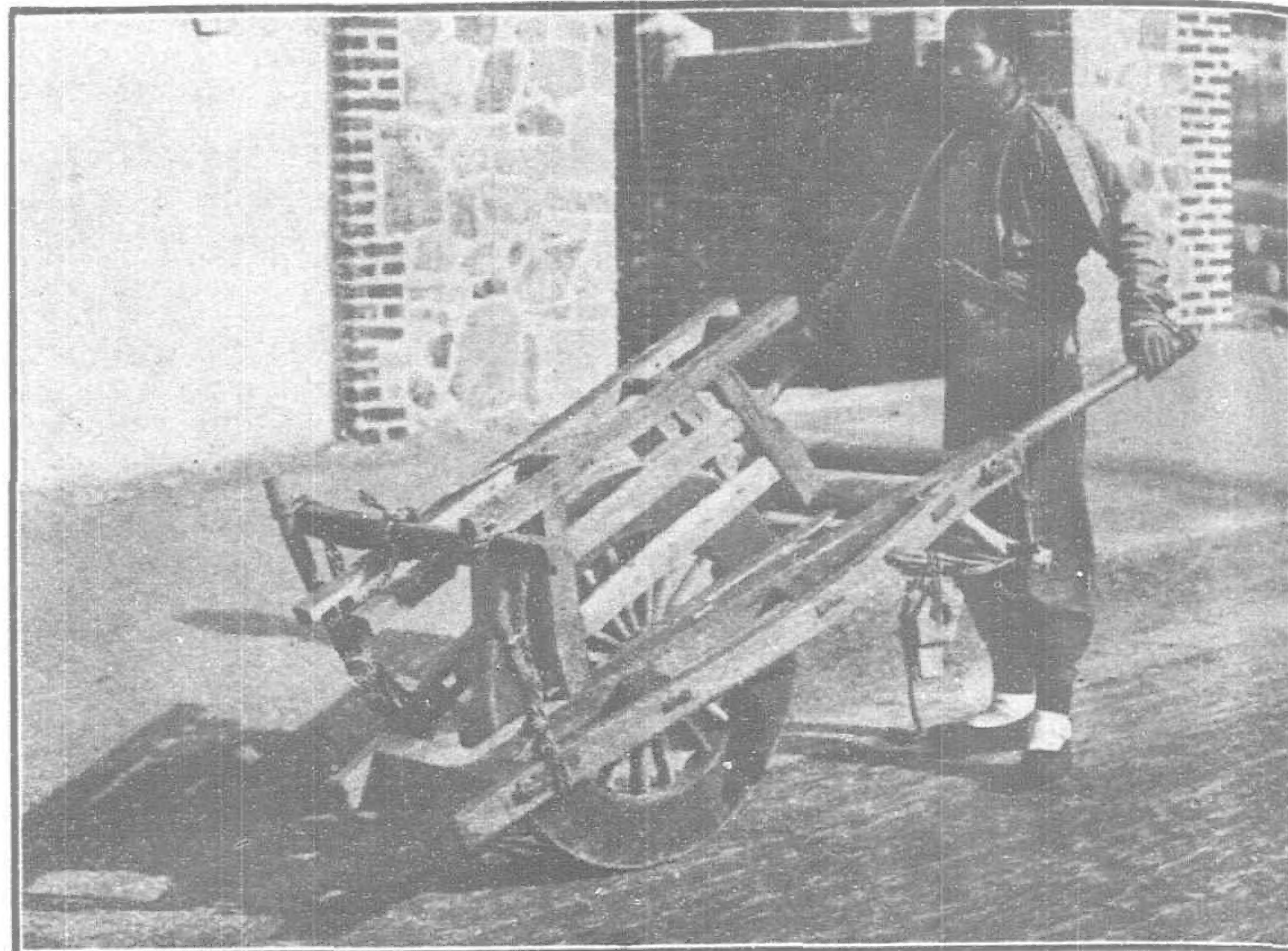


Photo by B. M. Gull BOARDING AN EMPRESS LINER



IDENTIFICATION NUMBERS



THE NATIVE BARROW

receive free clothes, food, housing, light and fuel, a free passage to Europe and a free one back to Weihaiwei or some port north of Woosung; a bonus of \$20 in hard cash when he embarks, and as compensation in case of injury \$75, in case of death \$150. All these conditions are embodied in a contract in English and Chinese and, in addition to them, the following: (a) food, but no daily pay abroad during sickness; (b) monthly pay in China during sickness up to a period of six weeks but none after that; (c) no daily pay abroad for time lost owing to misconduct, and, in cases of offense involving loss of pay for twenty-eight days or more, deductions of monthly pay in China. At the head of these conditions stands the opening phrase of the contract; namely, "By the terms of this contract dated this..... day of.....19.., I, the undersigned coolie recruited by the Weihaiwei Labor Bureau, declare myself to be a willing laborer," and at the end comes the seal of the Bureau and the laborer's thumb prints.

That the terms of this contract are fair and generous everybody will agree. Only once indeed in the whole of China's economic history has such a level of wages ever been approached—in South African days, and even then, taken as a whole, the terms were nothing like so good as those which the British Government is offering to-day. On the soberest estimate they mean complete freedom from economic anxiety for a period at its shortest longer than could possibly be guaranteed in China,

not merely for the laborers themselves but for their dependents also: while, resolutely and properly used, they mean comfort and security for the rest of the laborer's life. Expenses in Europe are practically nil. There is no earthly reason why the lowest paid man should not save at least twenty-five francs a month, while the better paid men can undoubtedly save a good deal more and all the time they are acquiring an experience which in itself will constitute a passport to decent employment when they return. The buildings erected but never used by the Witwaters-



Photo by B. M. Gull

TO WAKE NEW ECHOES IN FRANCE

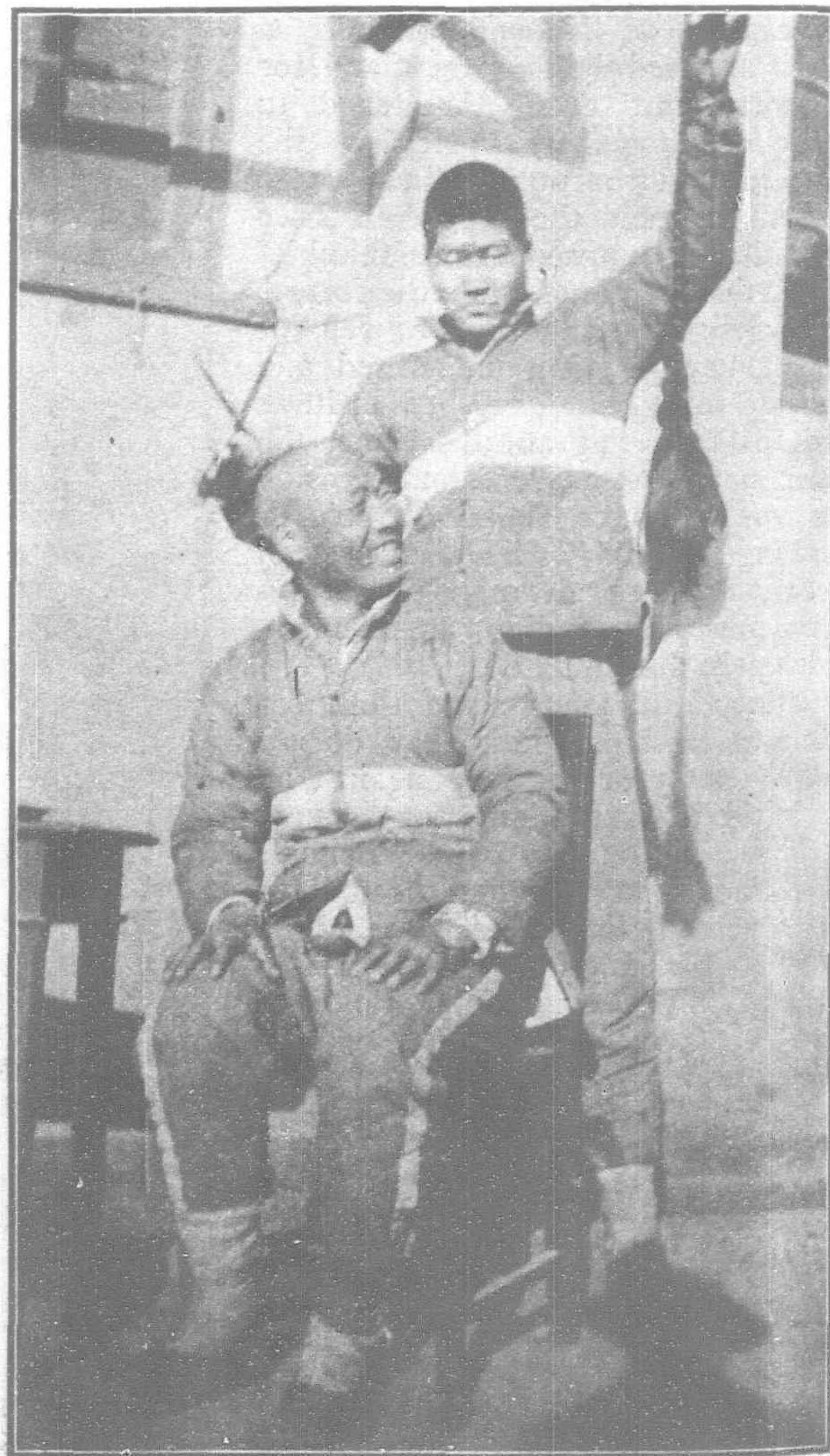
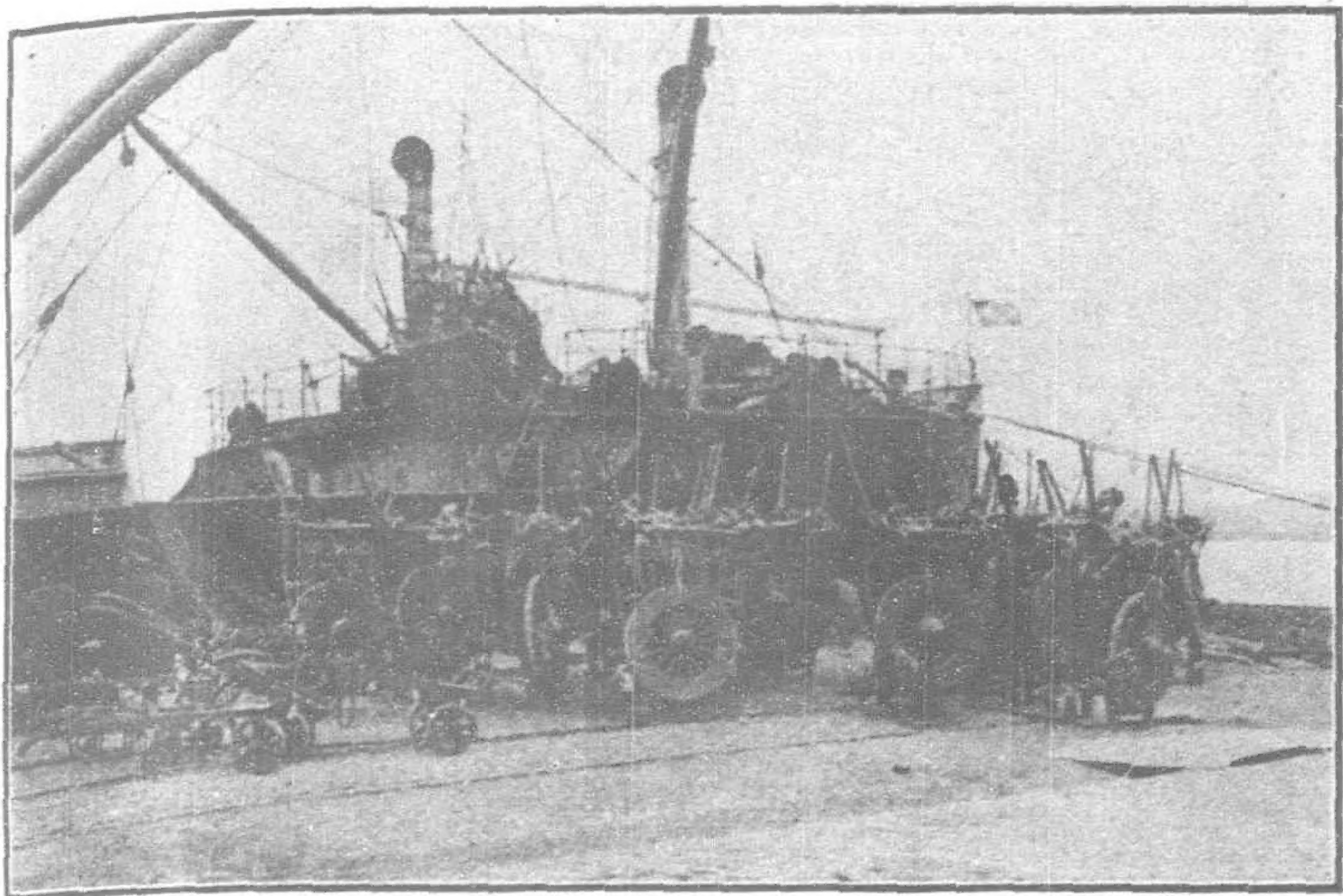


Photo by B. M. Gull

NO GRIEF AT PARTING HERE



CHINESE BARROWS FOR FRANCE



PUSH CARTS ALSO FOR FRANCE

rand Mining Association at Weihaiwei are to-day the gateway to an Eldorado.

Let us follow some recruits through its portals. They have just come down from the north by steamer and have been landed by a lighter at the iron pier at the foot of Kao Lu Ma T'ou. As they walk towards land looking upwards they see above them a large white godown with a thatched roof standing in the middle of a wired compound. Lounging inside and against the wire, watching the new arrivals, are recruits who reached Weihaiwei the day before after a cold and hungry trek across country from Chefoo, but who feel already old in experience of comfort and good food. Both lots of men look pretty disreputable. Their wadded clothes, all very much the worse for wear, in some cases are in rags, odd makeshift bits of cloth untidily adjusted to stop rents and gaps.

Chattering volubly and guided by a couple of Dépôt police in khaki uniforms and turbans, the men from the ship shuffle up the hill shouting question and answer to their brothers from Chefoo. Presently they have reached the compound gate and are making for the godown. In Dépôt phraseology it is known as the reception shed, and at a pinch could accommodate eight hundred men. Two layers of bunks run down the sides and center, a door opens at either end, and ventilation is secured by long barred windows high up under the eaves. Compared with the low narrow confines of their own homes the shed is palatial and there is a chorus of approval and much merriment as the men stake out their claims on the bunks.

It is afternoon, and punctually at five o'clock food appears. Bowls of rice, meat, and vegetables with tea in plenty come across from the Dépôt in big tubs, and as the men squat down on their heels in circles and begin ladling rice into their mouths, a middle-aged man with a hard, lined, weather-beaten face points with a grunt of satisfaction at a red and white flag fluttering above with a large black 福 (the Chinese for good fortune) plumb in the center.

Treated well and generously from the moment of their arrival it must not be supposed that recruits are "taken on" just because they are recruits or that their progress from the reception shed to the transport, which is to take them to Europe, is a tour



Photo by B. M. Gull

DRESSED IN NEW UNIFORMS

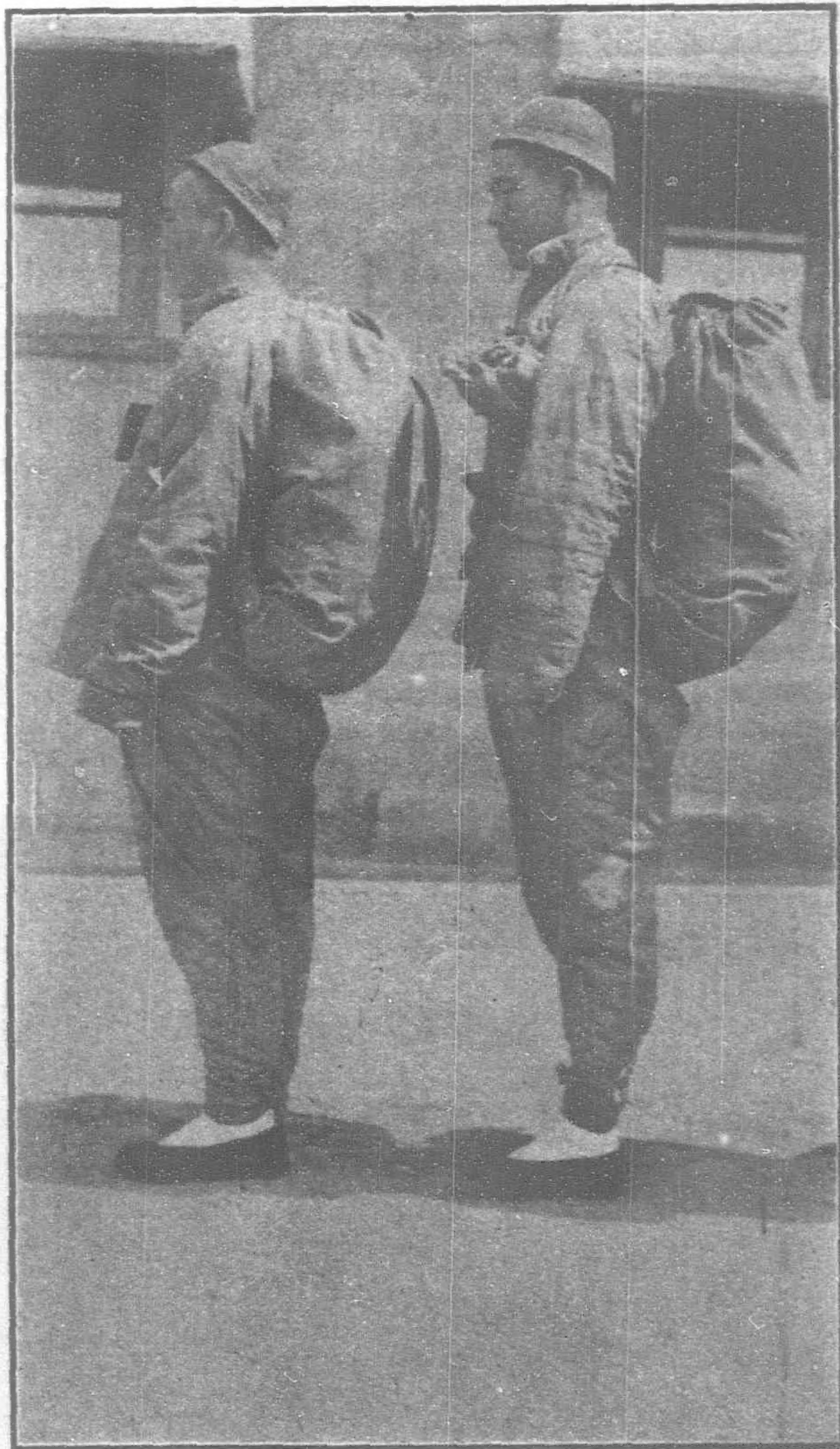


Photo by B. M. Gull

PROUD OF THEIR PACKS



LOCAL ALLOTTEES PRESENT THEIR PASS BOOKS



FORTY-FOUR THOUSAND PERSONAL ACCOUNTS

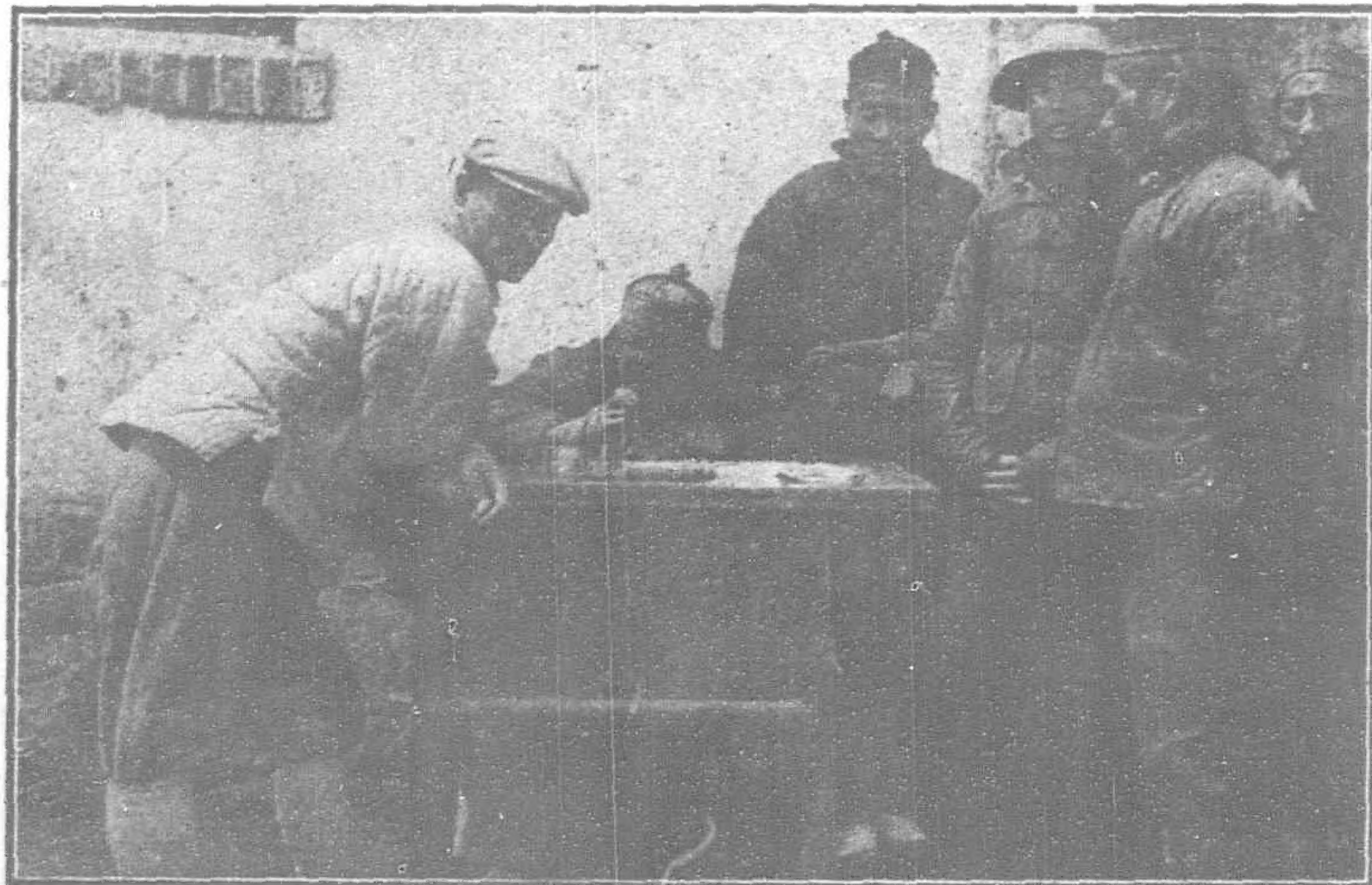
from one charitable anteroom to another. The Weihaiwei Dépôt is not a philanthropic institution. It exists to select men capable of doing a hard and useful ten-hour day in France, and thereby release "white" labor for the sterner business of fighting. If it waves "happiness" above the new arrival's head it does not contract to pay him the excellent rates of wages indicated above without making very sure that he is worth his salt. In the first place recruits have to pass a strict medical examination conducted by a doctor attached to the staff. Taken out of the reception shed in batches, they pass into a room in the center of the Dépôt where, stark naked, they are tested in exactly the same way as the British Tommy and may be rejected on any one of the twenty-one grounds, from phthisis, bronchitis, or venereal disease to chronic inflammation of the eyes (trachoma), malaria, or bad teeth. Rejects get back into their old clothes and are given passages home and cost of food on the return trip. Those who pass the test successfully are each immediately given a serial number, which becomes their ego for the duration of their contract. By that number they are identified both here and in Europe; by that they are paid; and under it (as we shall presently see) is each man's allotment kept at the Pay Office. The number is at once entered with its owner's name in English and Chinese upon what is called an identification paper and is simultaneously placed upon the recruit's wrist in the form of a light brass bracelet, which, at a little anvil in an adjoining room, is securely riveted together with a small studlike nail.

The coolie's transit to this department is one of the most amusing stages in his development, for he emerges from the nude anxiety of the doctor's chamber to be clothed in Dépôt garments, his old clothes remaining in a heap on the floor, and smilingly conscious of the symbolism of the change, he struts into the next room as pleased as Punch. His bracelet securely fastened, the recruit turns next to a table where Chinese writers fill in on his

identification paper (almost as essential a possession as his number) particulars as to his age, height, the date of his appointment, his address and that of his next of kin and, most important perhaps of all, the name of the person to whom he wishes his allotment or pay in China to be given, his relationship to his allottee, and the latter's address. Next he passes into a waiting room where he becomes a member of a section or *p'eng* of fifteen men, the section leader, or *p'eng t'ourh*, being elected in approved democratic style by the other fourteen. It is surprising how quickly the sections thus formed become organized and disciplined entities and assume a corporate character. As a rule their lives are continuous from this moment up to the time of their arrival at the Dépôt in France. They learn to eat, work, and sleep together; the members become mutually responsible for each other; and the section leader assumes a position of fatherly responsibility equal to the most unexpected emergencies. From this point of view indeed the Chinese Labor Corps is an essay in self-government which pro-monarchists in China would do well to study.

Classified now by number and *p'eng*, the recruit passes into yet another room where his knowledge of English is tested and he is questioned in regard to his previous occupation. In most cases, of course, knowledge of English is *nil*, and the fact is duly entered on his identification paper together with details as to his former trade.

This done, the final stage in his enrollment has been reached, to wit the taking of his finger prints on both identification paper and contract. The finger-print specialists are not at this end but in France, where each coolie is identified twice, once on arrival, and once on leaving the Dépôt before going out with his company to work. The safeguard is a very necessary one and has been found by experience both in South Africa and in Europe to be the only reliable method of preventing substitution. As such



THE LETTER WRITER

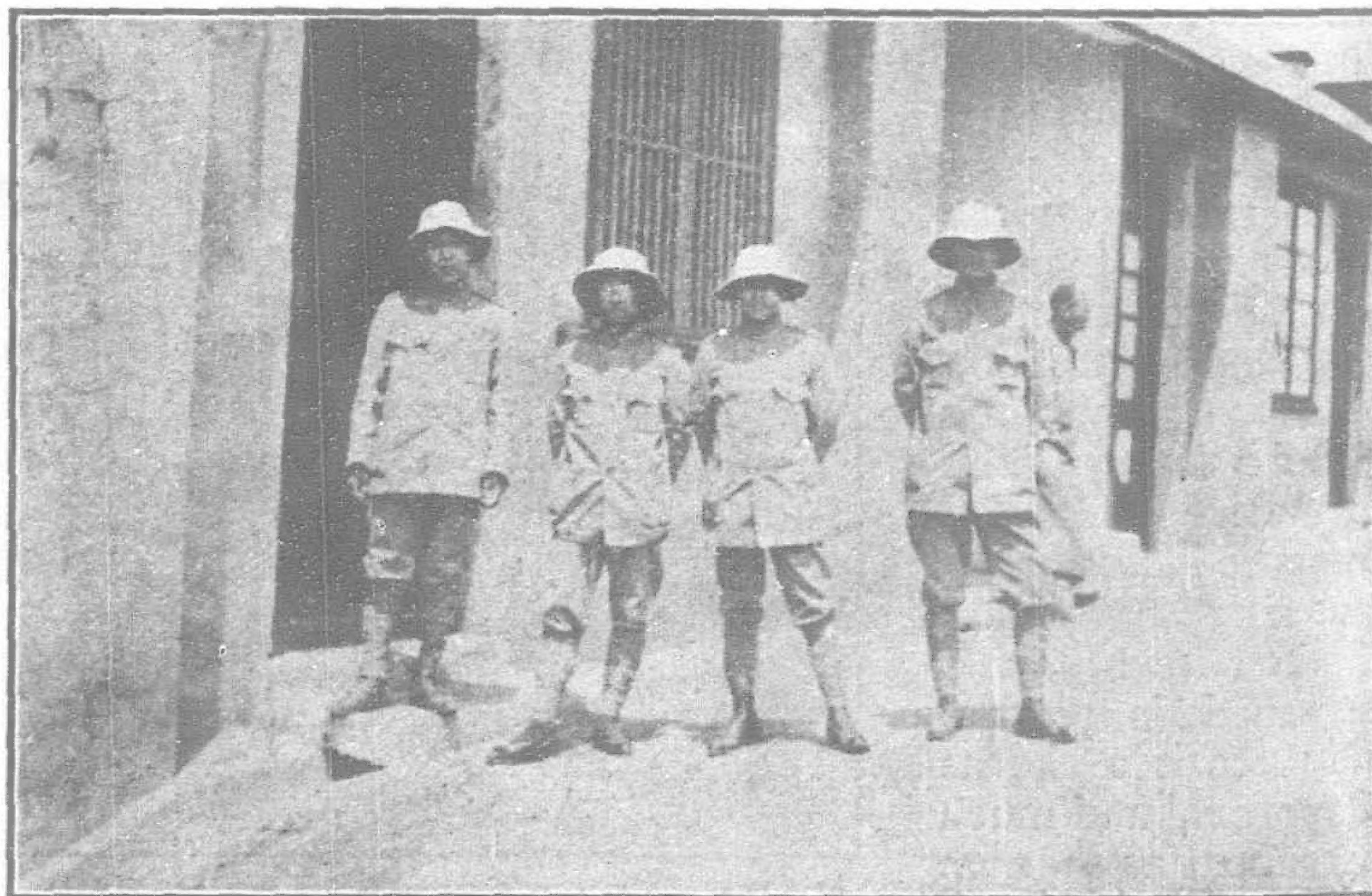


Photo by G. S. Moss THE INTERPRETERS HAVE THEIR OWN QUARTERS

the coolies welcome it, realizing the truth of the proverb "We must take the short with the long" and that they are being protected against weaker brethren, a fact which will become clearer when we leave the Dépôt to see how the Pay Office is organized.

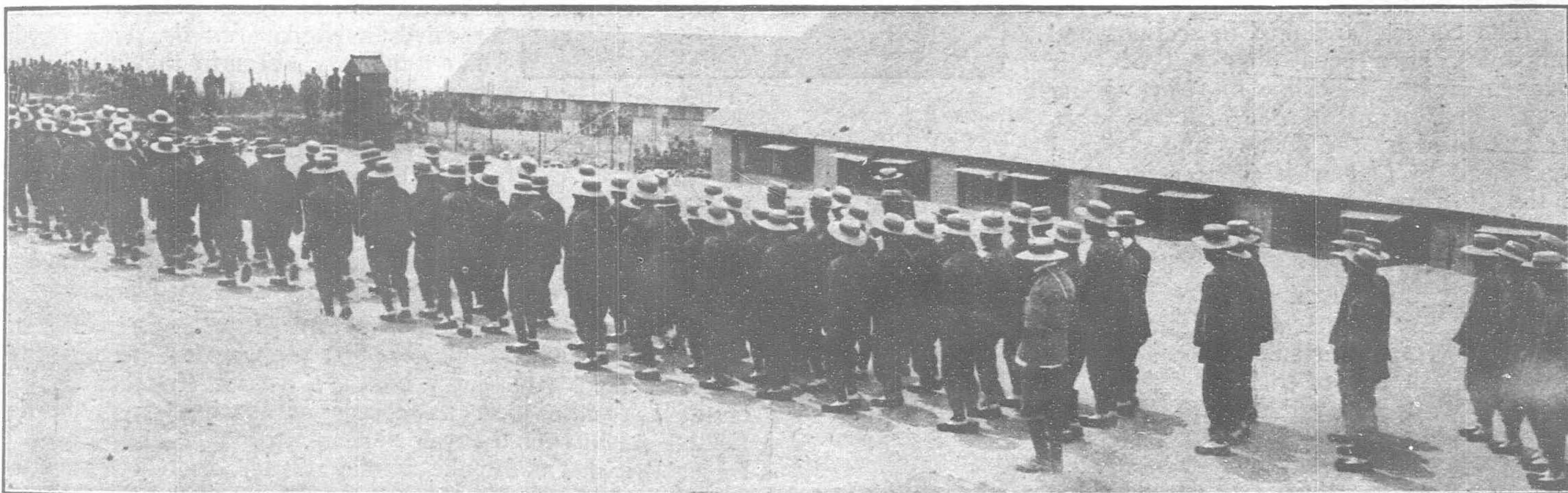
Before doing this it is worth while taking a stroll through the Dépôt grounds. As was intimated at the beginning of this sketch the sporadic group of buildings on the knoll, which forms one horn of Half Moon Bay, were converted to the use of the present emigration scheme hurriedly, because they stood ready to hand and formed ample accommodation for what was then the estimated number of coolies. Subsequent increases had, however, soon to be made and in consequence of them it has been found necessary to extend the Dépôt up the side of the hill. In addition to the administration offices there are eight accommodation sheds or godowns, one of which is termed the "going away" shed and is used mainly on embarkation days; police quarters; special quarters for the interpreters; a general as well as a small isolation hospital; a cookhouse; bathing sheds; and right away at the far end of the compound an officers' mess.

The Interpreters' quarters are as comfortable as any officers' mess behind the lines in France,—an appropriate and entirely correct index to the estimation in which they are held. That again is reflected in the conditions of their pay. A first-class Interpreter, or Interpreter Clerk, receives Frs. 5 per day in France and \$60 per month in China; an assistant Interpreter receives Frs. 2.50 in France and \$30 per month in China, whilst a Field Interpreter earns Frs. 1.25 in France and \$15 in China.

pu pao ("one can never get enough") is an unknown cry either here or in France, and the rapidity with which healthy but underfed recruits fill out and broaden after a short spell in the Dépôt, is the best testimony possible, both to the generosity of their diet and to the ordered disciplined life which they are called upon to lead. Regular meals, physical drill on the sands, elementary squad and company drill, route marches in the territory, decent clothes, cleanly surroundings, fixed hours for reveille and lights out, all these things at once strengthen and smarten the men, both in mind as well as in body.

A couple of photographs illustrate this, and it may be noted in passing that coolies have not been long in the Dépôt before their cues disappear, a change, however, about which there is no compulsion but only the inducement of fashion. The earlier contingents sailed with quite a large number of men with their plaited hair coiled round underneath their caps or hanging down—a little shamefacedly, forsooth—between their packs and their backs. Later, a strong movement took place among the Chinese themselves and was encouraged by a small monetary reward for each company of three hundred men which elected to be shaved. A defaulter in a company deprived it of its "cumshaw"; needless to say there were few defaulters and the practice resulted in a very wholesale clipping.

Pay does not begin until the coolie arrives in France, and "cumshaws," which help to tide over the period between arrival at the Dépôt and the receipt of bonuses on the day of embarkation, are eagerly welcomed. And the Dépôt is remarkably generous in this respect. Every coolie receives as pocket money one dollar



ROUTE MARCHING KEEPS THEM IN FORM

That good men are worth every cent of this money, everybody with practical experience of handling Chinese labor in large masses will allow. The supply of Britons able to talk Chinese fluently is far too limited for the needs of the Corps, and Chinese Interpreters of the class which, one is glad to say, has latterly been offering its services, are of the very greatest value and assistance.

The accommodation sheds where the coolies are housed are furnished with three tiers of bunks down the center and two tiers on either side. Each shed is capable of housing a thousand men, though in actuality they are never as full as that, a fact which the European would appreciate but which the Chinese prefer to ignore. Supplied with blankets they like sleeping close together, a practice which, if slightly stuffy to our ideas, facilitates the work of the dormitory prefect, who has a little room to himself perched on an upper tier, whence eyes and voice can command the whole shed. The cookhouse is a most impressive and efficient establishment. Sixteen enormous stoves, with caldrons almost as big as Soochow tubs, stand in double rows and turn out three handsome meals daily, provided free by the Dépôt, on a scale which includes two catties of rice and millet; four ounces of fresh and four ounces of salt vegetables; hot water *ad lib.*; one hour after meals, one half ounce of tea; meat every Sunday and Wednesday at the rate of four ounces (bones excluded) each day; and fish, salt or fresh, at the rate of four ounces daily on the remaining days of the week. "*Chih*

every ten⁷ days, second-class, gangers two dollars, and first-class gangers four dollars. In these circumstances, time at the Dépôt passes pleasantly enough.

The minimum of sickness that exists—and in any large encampment there are always a few men in the sick bay—is well provided for. The isolation hospital is at most times empty: the general hospital above it, a commodious brick building with trestle beds set in rows in a large airy room looking out over the entrance to the harbor, is never more than a quarter full. It is perhaps from the hospital door that one gets the best impression of the Dépôt as a whole. To the left lies the sea, big with the unanswered questions and hidden possibilities into which, mistlike, each transport filled with coolies sails, diminishes, and disappears; half right are the hills of the great Shantung promontory sheltering Narcissus Bay and Port Edward; immediately below, dropping down in terraces to the white arc of sand beneath the road are godowns, offices, and compounds, all busily preparing for the next embarkation.

For it is for embarkation day that the Dépôt lives. Sailings are in the hands of the Admiralty which apportions transports to Weihaiwei and Tsingtao, in accordance with its own and their requirements. One is not at liberty, unfortunately, to describe a voyage home and so give a glimpse of the Navy's methods in time of war. One has to be content with the bare statement that so far not a single Chinese life has been lost through enemy action on the seas. Nor has a single life been lost through any

neglect or carelessness at any stage of any journey, and if one thinks for a moment what opportunities for accident there are in embarking and disembarking, entraining and detraining thousands of men unused to any form of transport other than carts, mules, and wheelbarrows, there is no boastfulness in saying that such a record is a splendid one.

The men go off in the highest possible spirits, as anybody who has watched an embarkation will testify. The transport is due, we will say, at three in the afternoon and it is a fine day. There is wind (when is there not during the winter months at Weihaiwei?) and a slight swell, but nothing of any consequence, and the glass is steady. It is half past one and from the Pay Office the Acting Paymaster has just telephoned to the Dépôt that he will be up and ready to begin paying the men at two. A couple of thousand odd are going and as each is entitled to ten dollars in hard cash, there is quite a lot of silver to be carried up the hill. The carts on which it is to be loaded are waiting with an escort of Weihaiwei Police down in Port Edward outside the Bank, and presently sack-loads of dollars are carried out from the strong room and dumped, chinking, onto them. With the Paymaster and his assistant at its head the procession starts, winds slowly up past the hotel, dips down to the foot of the boys' school and creaks along the sea front to Kao Lu Ma T'ou, where, in the meantime, preparations are in full swing.

The coolies, arranged in sections and companies, have been filing out of their sheds in a long blue line into the "going away" shed, on one side of which they strip, are examined by the doctor, and syringed from head to foot with disinfectant; and on the other are dressed in brand new uniforms, and made proud owners of bulky brown canvas packs containing the following additional articles:

- 1 raincoat
- 2 summer suits of jacket and trousers
- 1 winter suit
- 1 pair of socks
- 1 pair leather shoes
- 1 blanket
- 1 quilt
- 1 brush
- 2 combs
- 1 towel and soap
- 1 basin, mug, dish, and water bottle
- 1 pair chopsticks
- etc. etc.

By the time the Paymaster with his train of money bags has arrived, there are close on a thousand men ready to be paid, and, without loss of time—the dollars taken out of their sacks and arranged in neat rows of ten on small wooden trays—the paying begins. The pay sheets are made out in sections of fifteen and lie in piles on a side table at the Paymaster's left, a Briton and a Chinese seated in front of them to check off the figures and sign as witnesses. On guard at the door are marines in case of trouble (needless to say, there has never been any) and at a given signal the men begin to file through the room, the Paymaster reading each man's number from his bracelet. In the early days, each coolie received on embarkation twenty dollars—and squandered it. To-day, he is given five dollars in cash, and fifteen dollars is remitted for him to his home or allottee. Even so, he has more money in his hand as he leaves the room than he has ever had at any one time before. "Money in his pocket and confidence in his glance," says a Chinese proverb, and as the men sally forth from the room they are full of confidence.

The transport has been sighted—her appearance in the offing has been signaled over to the Dépôt by the naval lookout on "The Island," Liu Kung Tao. Hundreds of coolies, washed, dressed and affluent, swarm into the compound surrounding the administrative offices, chaffing, laughing, inspecting each other's kits, counting and recounting their silver dollars, waiting for the command to form up and sally forth from the Dépôt, march on to the pier and lighter up.

Among them may be seen a sprinkling of musicians, or at least men carrying musical instruments. One contingent, indeed, was so far advanced as to possess a string band augmented by brass cymbals and kettledrums, to each company, and the zest with which they practiced all and sundry prior to their departure distinctly mitigated the sorrow in the Dépôt when the moment came for them to leave.

Outside the gates, especially on a sunny day, crowd the coolies' friends,—come, some of them, to take a last farewell, and to share the wealth that has so suddenly descended upon son or brother. The coolie forks out cheerfully and it has been remarked not once but many times how conscientiously these men will go out of their way to defray the little debts which they have incurred, when avoiding them would obviously have been the simplest matter in the world.

The passing of the first coolie through the Dépôt gates is the signal for a fusillade of crackers, and each successive company receives a similar *feu de joie*. Anything like a military effect in this march past is conspicuously absent—humanity proves the stronger element. The stream of men pouring forth is an uneven one. This, that, or the other coolie has a friend to speak to, a

packet of cigarettes to buy, another dollar to hand out to the quavering old father by the roadside, and his errand accomplished he lopes off at a jog trot and catches up to his section again before it turns off the winding road to march on to the pier.

Here, of necessity, discipline is to the fore. Numerical order must again be attained before the very last inspection takes place. Flanked by sentry boxes, a barrier stretches across the entrance to the pier. A couple of marines from the Naval Establishment over the water are in attendance, and as two of the Dépôt British Staff make a final roll call and check the number of every man who is to embark, the marines pass their hands rapidly over the men's clothes in order to ascertain that no contraband or materials likely to prejudice a successful passage are being smuggled on board the transport. The work is carried out expeditiously. By the time the great ship has dropped her

anchors the lighters have received their cargo and the Admiralty tug is getting under way to tow them alongside. The importance of not holding up a liner for one minute longer than is necessary to stow this human freight is in these days self-evident, and the endeavor of the Dépôt officers is only to beat their own record in the matter of a speedy embarkation overruled by the still more imperative necessity of doing safely, systematically, and well the work on which the comfort of the voyage so largely depends. It has received the commendation—on paper, too—of the Admiralty Representative in the Far East, which from a sailor to landmen at a

sailor's job is a compliment worth recording. The landmen, however, would be the first to acknowledge the efficient backing they have received from the Naval Establishment on the island.

And while a little laxity has been permitted at the moment of leave-taking, all now is order and discipline of the most practical description. As the coolies are arranged in the lighters so will they file up the companion way of the transport. Company



Photo by B. M. Gull
"I DECLARE MYSELF A WILLING
LABORER"

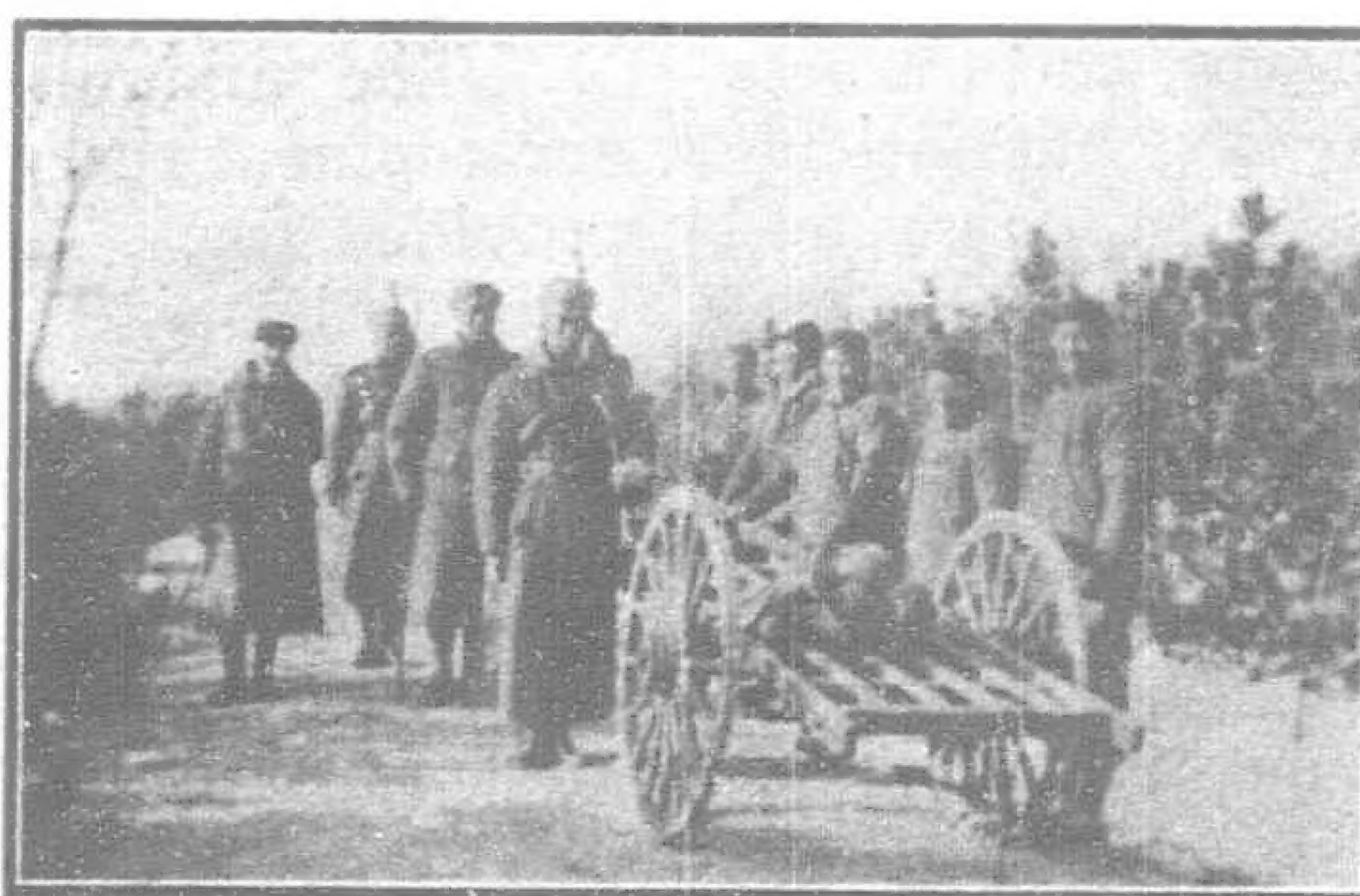
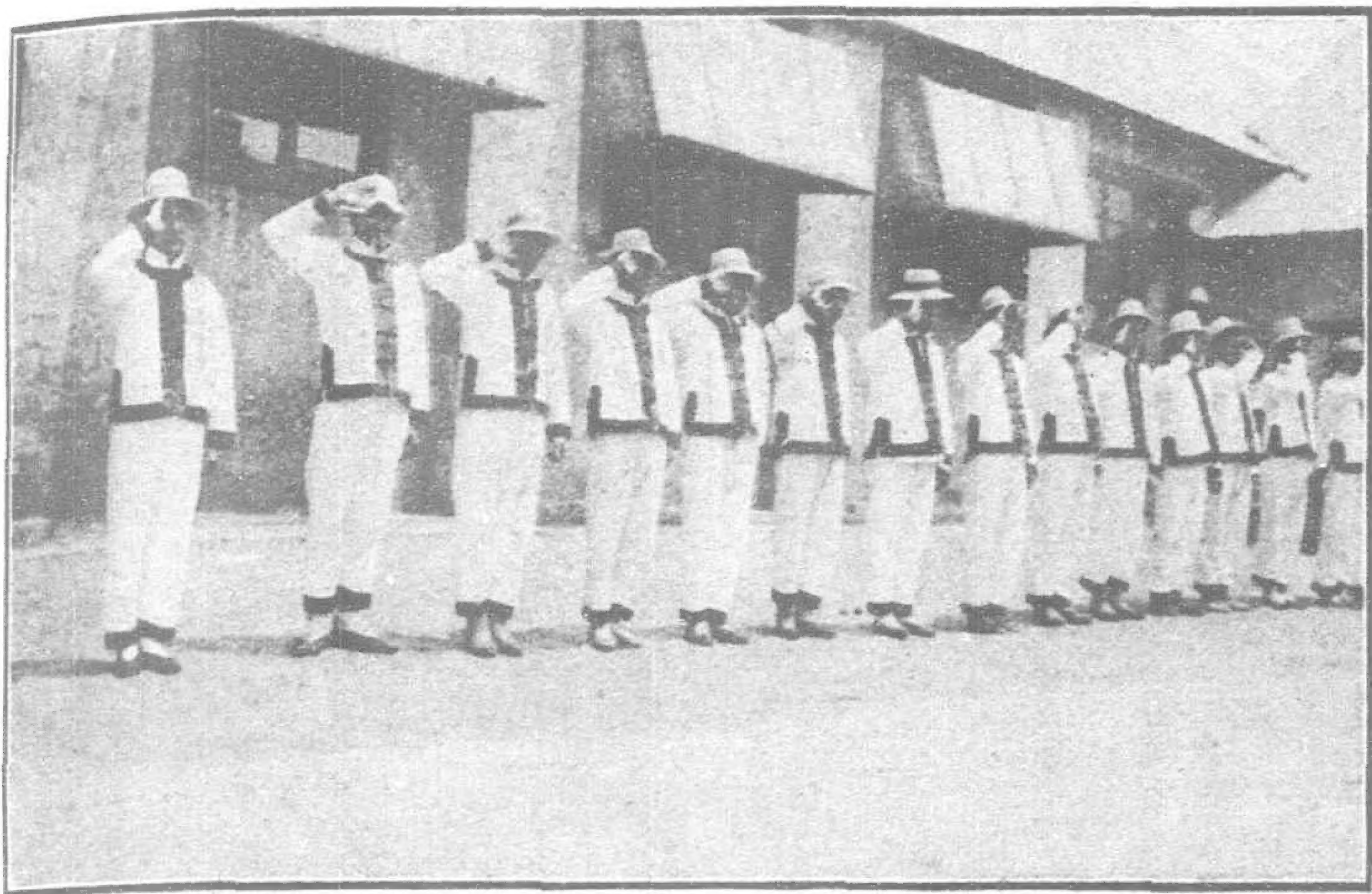


Photo by H. T. Rogers
HOW THE DOLLARS COME



THE SANITARY SQUAD



Photo by B. M. Gull YESTERDAY'S ARRIVALS GREETING THE OUTSIDER

officers, stiffened with certain of the Dépôt permanent staff have gone aboard in the pinnace well ahead of the men and are ready to shepherd them without delay to their quarters, where berths all numbered off in sections are awaiting them. Here with the extraordinary adaptability that characterizes him, the coolie quickly settles down, stows away his pack, and arranges his tooth-brush, brush and comb, mug, and sundry other little possessions neatly along the side of his bunk.

Not a suggestion of uncertainty, of reluctance, of fear, or of unwillingness, now that the crucial moment has arrived, can be observed. His intrepidity is as deep-seated as it is apparent, and a little instance of their abounding faith in the British contract was displayed when a large party of recruits arriving from Tientsin at Weihaiwei thought when they set foot on terra firma there that this was Europe and that they had reached their destination. All they had absorbed was that a long sea journey was ahead of them (none of them had ever seen the sea before) and, lo, and behold! the magnificent junk (a coasting steamer) that had carried them had accomplished it in thirty-six hours.

So we will leave our traveler in embryo and turn now to no less important a factor in the great labor scheme—those he has left behind him.

The little knot of relatives and the farewells stand for an aspect of the Chinese Labor Corps upon which insufficient emphasis has been laid both here and in Europe. People, especially Treaty Port people, who know China only from office or club window, talk of the Chinese coolie as though he were a soulless wage earner with feeling and thought for nothing but food and money. They forget that he has other characteristics, among them reverence and family affection, and that in a very large number, if not, indeed in the majority, of cases it is as much this as any selfish motive which takes him abroad. This being the case—and the statement is made deliberately after a year's close

contact with the men and experience with the Corps both in France and at Weihaiwei—the factor which more than all others is making the Corps a success is the allotment system. As already shown, each coolie, in addition to his pay abroad, receives ten dollars a month payable to an allottee whom he himself appoints previous to his departure, or credited to his account and retained at the Dépôt until his return to China. Gangers, as reference to the schedule of wages will show, receive more than this. The money, in the great majority of cases, is remitted monthly through the Chinese Post Office in money orders payable at the Cashing Office nearest to the allottee's address; it is posted a few days in advance of the date on which it falls due (a month, in the first instance, from the date of embarkation) and on no consideration whatever, other than the coolie's expressed wish in a letter thumb printed by himself, and witnessed by his Company Officer in France, is anybody other than the original allottee able or allowed to touch the money.

To see how this is guaranteed we must, now that the transport is hull down and will soon be out of sight, walk across to the Pay Office and examine its books. The offices stand close to those of the Territory, some two miles from Kao Lu Ma T'ou and were once the barracks of the Weihaiwei Regiment. There are two blocks at right angles to one another and at the corner of the one that abuts on the road you may see on most days at almost any hour between 9 A.M. and 5 P.M. a little group, and on the eighteenth of each month quite a big crowd, of Chinese standing at the foot of a short flight of steps. They are allottees of coolies who have gone from the Territory or from places just outside it and they come in person to receive their money.

They enter the building and present at the counter, with which they are immediately faced, little green pass books issued to them on the occasion of their first visit, after they have

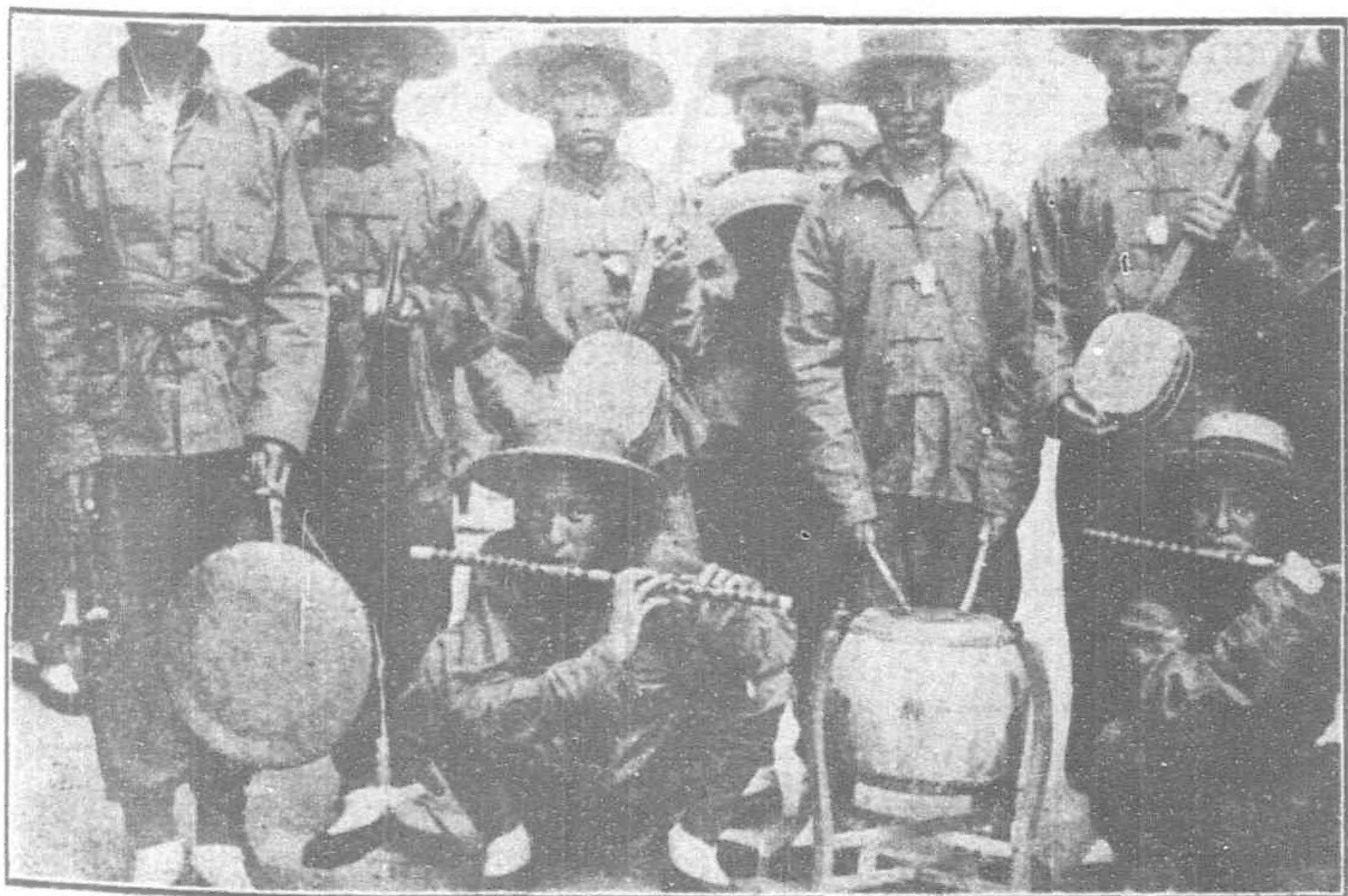


Photo by B. M. Gull POOR UNSUSPECTING FRANCE!



Photo by B. M. Gull THE ADVENT OF FOOD



Photo by B. M. Gull

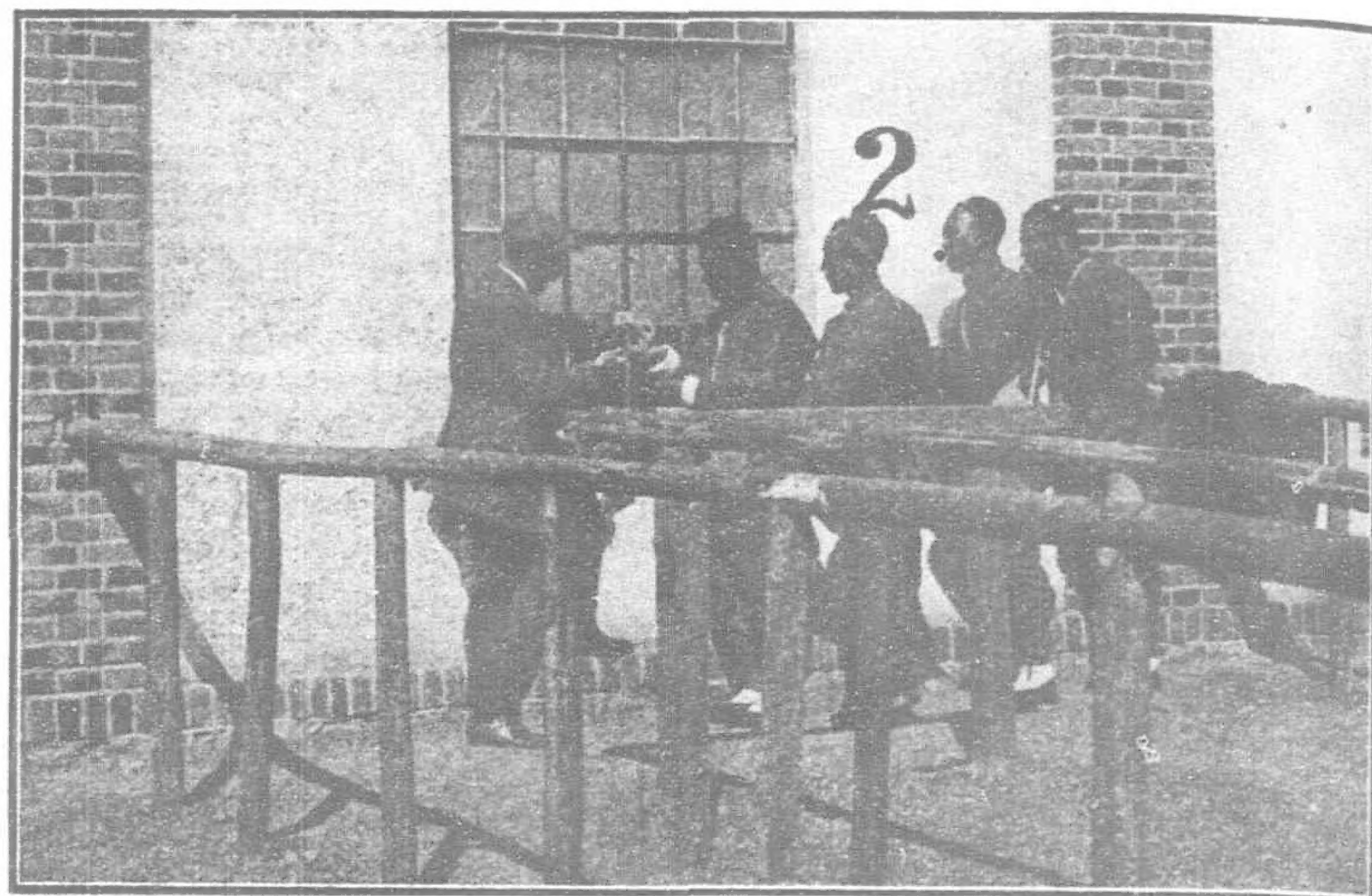
LIFE'S REAL BUSINESS

satisfactorily proved, or furnished reliable shop guarantees, that they are the allottees of the coolies who have gone abroad. Every individual coolie who has gone to France from Weihaiwei has his own ledger account—a single page in a massive volume, each page so designed as to show at a glance, under the coolie's number and name and the name and address of his allottee, the amount credited and debited during each of the thirty-six months of the contract's duration, together with the number of the money order in which each amount was remitted and the date on which the remittance took place. On the debit side of accounts paid in cash these latter details are, of course, unnecessary, for the allottees with whom we have just entered the office receive their money over the counter and sign receipts there and then.

Over forty-four thousand coolies having left Weihaiwei there are precisely that number of accounts to be kept accurately posted. That means a big staff,—ninety-one to be precise—exclusive of the Acting Paymaster and his British assistant, under whose supervision every detail of the work is carried out. To realize how thorough the supervision is, let us go through the office and see how the various parts of the organization dovetail into one another. Here is a letter in Chinese—one of a couple of hundred which have just come in. What does it say? It has been written by, or more probably for, an old lady of seventy-five who, after kotowing in sprawling “grass characters,” affirms that her son Wang left Weihaiwei on July 16, wrote to her a day or two before to say that the Pay Office was remitting part of his bonus, \$10, and a monthly payment of a similar sum, that she has received the part bonus and the first month's allotment and is extremely grateful therefor, but that the second month's payment has not reached her.

The Paymaster's foreign assistant, who supervises all the Chinese correspondence and who has had practical experience with the C. L. C. in France, sighs sadly because the dear old lady with all her politeness has forgotten to give the coolie's number. At the Dépôt, however, they keep a card index of all the coolies who have gone abroad and can supply you with every variety of “Wang” at a few minutes' notice. This one is Wang Tien-tseng with a *t'u tzu p'ang* (descriptive of the ideograph); and, as the foreigner in charge of the index knows Chinese also, he has no difficulty in taking down the name over the telephone, finds the number wanted, and telephones it back.

With the Paymaster for guide you next proceed into the Ledger department, call for the ledger with this number in it, and turn up the account. Two payments have been made, and the one which the old lady has not received is entered on the debit side as having been posted in Money Order No. 66547a on September 12. Because you are a visitor with a bona fide interest in details you are taken next to the postal department in the other block and the Chinese clerk in charge is asked for the number of the registered letter which is, or should be, carrying Money Order No. 66547a to its destination. You will note that the Chinese clerk is given no other information. He busies himself for, say, three minutes amongst a number of files and presently hands the Paymaster the number wanted. Just to check



PAID BEFORE ENTRAINING

him and to see that he has made no mistake you are then taken from this room to the branch of the Chinese Post Office specially allowed by the British and Chinese authorities concerned to function in the Pay Office and for Pay Office purposes alone, while remaining entirely under Chinese Government control. Here both the money order and the registered letter are duly traced. Satisfied of this we return to inform Mrs. Wang that the money should reach her in a few days, pausing on the way, however, to see that the receipt of the first month's payment has come back. At this point the only information vouchsafed to the Chinese clerk is the coolie's number, and from over fifty bulging files of receipts from other allottees he presently produces the one in which we are momentarily so interested. Sure enough, it is signed by Mrs. Wang and chopped by a shop known to the cashing office concerned and considered by it to be a satisfactory guarantor.

It will, I think, be agreed that there is very little wrong about a system which—provided you can quote one of three numbers, the coolie's number or that of a registered letter or of a money order—can in less than ten minutes furnish an allottee who lives in any village you like to name from Kiangsu to Shansi, or Chihli to Hunan with exact details of the money standing to the credit of his or her account; can insure that allottee receiving the money due; can prove to the coolie in France, whenever he cares to inquire, that his wishes in respect of his allotment are being faithfully carried out; and, further, by reference to its duplicate identification papers (already fully described) can provide you (always assuming you quote accurately any one of the three numbers just indicated) with a detailed personal description from age or height to birthmarks of any one of forty-four thousand odd coolies who are on the Weihaiwei register.

What happens, you may ask, in the case of an allottee's death, or, of a coolie's changing his mind, after he has been in France for some time, in regard to his allotment? In the first case, as soon as the information reaches the Pay Office, the allotment is suspended; that is to say, it ceases to be posted, and, though credited to the coolie's account, is retained: a letter is at once sent to the Base in France informing the authorities that the allottee of coolie number so-and-so is dead, accompanied by a letter in Chinese to the coolie himself, and nobody is allowed to touch the money until the coolie's reply, also transmitted through the Base, arrives. In the second case the coolie writes a letter, transmits it through the Base to Weihaiwei, and as soon as it reaches the Pay Office the desired change is made. There is a constant stream of such letters passing backwards and forwards, and part of the work of the finger print specialists at the Base in France is to verify the imprints on each letter authorizing a change of allotment.

The War Office Representative and the Acting Paymaster would be the first to acknowledge that the success of their system is in no small measure due to the excellent organization and untiring energy and courtesy of the Chinese Postal authorities. M. Destelan, under whose able control the whole machinery of



Photo by B. M. Gull TO BE TESTED FOR SKILLED TRADES

the Chinese Post Office is kept in smooth, working order, spares no pains to give the Labor Corps all help in his power, and it is greatly to be hoped that Chinese will appreciate this fact with all its implications in respect of the future of the postal service.

This sketch of the organization of the Chinese Labor Corps at Weihaiwei—a plain, unvarnished statement of facts which any one, Chinese or foreigner, is at liberty to come and verify—should at least bring home to the Chinese mind that where responsible foreigners are placed in a position of trust they endeavor to the best of their ability to be true to their undertakings. It should at least bring home to the Chinese mind that in throwing in her lot with Great Britain China has joined partnership with a Power honest in its intentions, faithful to its word, and genuine in its affection for the sons of Han.

The Progressive Kinhan

To facilitate the supply of materials to the Peking-Hankow Railway and overcome the difficulties confronting manufacturers and merchants in knowing precisely what standards are required the Directors of the railway, Messrs. C. C. Wang and C. S. Shui, have inaugurated and opened in Peking what is described as "The Kin-Han Museum of Railway Materials." The annual purchases of this Railway amount to over a million dollars, which in most cases, are made through public tenders, but merchants have always found it somewhat of a task to determine exactly the type and nature of the materials required by the buyers. The Museum does away with this grievance. In the building selected for the exhibition there are on display in cases or on shelves some 2,500 samples of the materials constantly being required in the service of the line, and these are all labelled and described as to nature, use, size, weight, place of production and amount required each season, so that suppliers need have no difficulty in the future in meeting competition.

The exhibition is a distinct sign of progress. It is a useful advance towards general standardization, a desideratum in connection with all railways which is devoutly prayed for by many, and which would be a source of gain in numerous directions to the Government. The directors of the line are to be congratulated on their enterprise in establishing an exhibition of such a character, and while they are doing well by their line in facilitating the supply of materials wanted they will be doing better by their country if it turns out that they have started the ball rolling towards standardization of all materials from locomotives and cars downwards to nuts and bolts.



Photo by G. S. Moss THEY FILE ONTO THE PIER



SEARCHED BY MARINES



Photo by H. T. Rogers RELATIONS DRAWING THEIR MONEY AT WEIHAIWEI

Coal Resources of the Philippines

Many samples of coal from different sections of the Philippine Islands have been received by the Bureau of Science in Manila for examination and as a result of the analysis made, it has been found that valuable coal deposits are in the country. The names of the places whence the coal samples sent to the Bureau of Science have been taken have not been given out by the authorities for publication but prominent officials declared that there is great enthusiasm on the part of certain Filipino capitalists to take advantage of this opportunity and develop the coal deposits now lying untouched.

Chinese Copper Alloys

BY CHEN TEH YUEN, B.S., SOOCHOW UNIVERSITY

[Concluded in This Number]

Copper, especially in the form of alloys, is almost indispensable to mankind. There were special uses in past ages as well as new demands in modern times.

Since the first making of bells in the reign of Wang Ti (2697-2597 B.C.), as mentioned above, "sound copper" has been used in the making of musical instruments. The making of copper coins also dates back to the time of Wang Ti. In the Chou Dynasty (1122-249 B.C.), Tae Kung adopted a form of coin that was circular in shape with a square hole in the middle. Since then the coinage of copper money has been continuously carried out in different times. It has consumed a great deal of copper and was the chief cause of the famine of copper as already mentioned.

In times of antiquity, or more exactly, in the Copper and Bronze Ages, weapons were made of copper and bronze. Keang Yen believed that ancient daggers were made of copper. In the eighteenth year of the Duke She (642 B.C.) of the Lu State, the viscount of the Tsoo State presented a certain amount of copper to the Count of the Ching State.

The former, however, repented and asked the latter to swear not to use it for making weapons. Accordingly, Count Ching made three bells. The collecting of all the weapons by Tsin Shih Wang shows that at that time (246-210 B.C.), most of the weapons were made of copper. Even in the reign of Wen Ti (179-157 B.C.), in the Han Dynasty, copper weapons were still used to a certain extent. Kea Nie advised him to collect all the copper and use it for making weapons.

In ancient times, emperors frequently made tripods or "tings" of enormous size, which were considered as national treasures. Wang Ti (2697-2597 B.C.) opened a mine at Show Shan and used the copper to make three "tings" at Kin Shan. Chuan Hu (2513-2436 B.C.) also used the copper from Yu Shan for making some of these "tings." At the time of Yu the Great (2205-2198 B.C.), the rulers of the nine States gave tribute copper to him. So he used this supply to make nine "tings." The Empress-Dowager Wu (690-704 A.D.) of the Tang Dynasty had also nine "tings" made consuming 560,712 catties of copper.

Copper statues called "metal men" were frequently made in times of antiquity. They were not necessarily likenesses of great men but simply decorations of the court of the Imperial Palaces. As already mentioned above, Tsin Shih Wang made twelve "metal men" of immense size, which are said to have been destroyed by Tung Cho for making small coins. Ling Ti (168-189 A.D.), of the Eastern Han Dynasty, had two rows of "copper men" made and put them outside the gates of the palace. Ming Ti (227-239 A.D.), of the Wei Kingdom, made two copper statues called "Ung Chung." In this connection, it should be mentioned that since the introduction of Buddhism in our country (65 A.D.), immense amounts of copper have been consumed year by year for making images. Shih Tsung of the After Chou Dynasty (see above), in collecting copper vessels and images, said: "Buddha teaches his good doctrine to the people. To follow the good doctrine is to worship him. Why should we worship the copper images?"

The pillars of the palaces were sometimes made of copper. The assassin Kin Quo would have succeeded in killing Tsin Shih Wang, had his dagger not hit the copper pillar of the palace. When Tung An Yu ruled Tsin Yung, he used wrought copper to make pillars for the palaces and other public buildings.

It is an interesting fact that coffins were sometimes made of copper. King Ho Leu of the Woo Kingdom had three layers of

copper for his external coffins. Tsin Shih Wang was also buried in an external coffin of copper.

Mirrors were formerly made of a kind of copper alloy as already referred to in the above discussions. This alloy was probably somewhat similar to the speculum metal of which the specula for reflecting telescopes were made before the art of glass manufacturing and that of reflector silvering had been developed in Western countries.

Copper, either in its metallic state or in the form of compounds, is sometimes used as medicine, though it is now condemned by most of the modern Chinese physicians. It is said that metallic copper in very finely divided state and mixed with wine can join broken bones of man and animals, if taken internally! It is recorded that Tsuy Wu of Dingchow fell from horseback and broke his leg. The physician gave him a mixture of copper and wine. He took it and his wound healed. Ten years after his death, his tomb was opened for reburial. It was found that the broken part of his bone was bandaged with a layer of copper!

Another interesting example of the medical uses of copper is the custom of the chewing of ancient copper cash as a home remedy for cholera. It is said that healthy men cannot break the cash by chewing, while those who have this kind of disease can do it easily. As a rule, the ancient cash is covered with a layer of copper salt, probably basic carbonate. The saliva of a patient might be different from a healthy person and consequently react with the copper salt, forming a soluble compound. It may be the solution of this salt that cures the disease.

There are also many other preparations of copper for external uses. When the powder of red copper is mixed with gallnut, it can be used as a hair dye. The "copper green" can be applied for healing the wound, if one is bitten by a snake. Warts can be removed by breaking the skin slightly and then applying some "copper green." Ulcers can be cured by applying a preparation made by boiling "copper green" with vinegar.* It is first pulverized and applied along with some "flammable wine."

Besides these, there are various prescriptions in which copper or one of its compounds is used. They can be found in ancient literature on medicine. At present, though it is very rarely used by trained Chinese physicians, the native copper can still be purchased from any apothecary's shop.

As to the use of copper alloys in modern times, they are too numerous to describe in this short paper. Its indispensability is suggested by the fact that copper articles of various sizes and uses invariably constitute a part of the dowry of a Chinese bride. In short, copper alloys are as important for uses in the home, as iron and steel are indispensable to manufacturing concerns.

Chemical Analyses and Conclusions

There are four principal methods of research applicable to the study of alloys. They are chemical analysis, microscopic examination, study of the phenomena of fusion and solidification and the study of the physical properties of the alloys. They supplement one another, and taken together, enable very many inductions to be made, so that what may be called a theory of alloys can be formulated.

*When "copper green" is boiled with vinegar, a normal acetate of copper is probably produced. It depends somewhat upon the conditions under which the preparation is made. The basic acetate of copper (verdigris) has long been used in medicine by foreigners in the form of an ointment or liniment, chiefly as a caustic application to warts.

Chemical analysis, however, is probably the most important among these four methods, because it enables us to know the exact percentages of the chief constituents and of the impurities by which the properties of the alloy are greatly affected. The results of chemical analysis of several kinds of copper alloys are given below, also, some conclusions derived from a study of these results.

(a) Sound Copper

Sample.—A kind of bell used in Buddhist temples. It was polished to remove the oxide and other matter and then cut into fine pieces. [Standard methods of analysis were used and therefore are not set forth here. Ed.]

Results of Analysis (Percentages)

	Copper	Tin	Iron	Nickel
1.	77.944	22.486	Trace	Trace
2.	77.8	5722.089		
3.	78.317	22.257		
4.	78.317			
5.	78.317			
6.	78.418			

Average value 78.228 22.277

Conclusion.—“Sound copper” is an alloy of the copper-tin series, which resembles what the Westerners call “bell metal.” Indeed it is used for the same purposes as “bell metal,” that is, to make musical instruments. From the results, we see that it approaches the lower level of the useful bronzes.

(b) White Copper

Sample.—A piece cut from a sheet of the alloy obtained from a store in the City of Soochow. As the name indicates, it was silvery white in color. It was brightened by filing and fine pieces were cut from it here and there so as to obtain a representative sample.

Results of Analysis (Percentage)

	Tin	Lead	Iron	Copper	Nickel	Zinc
1.	1.336	3.311	1.998	45.702	14.664	31.697
2.		3.212	1.891	45.765	14.664	31.730
3.			1.844	45.826	14.523	31.908
4.				45.934		

Average value 1.336 3.262 1.911 45.807 14.617 31.778

Conclusions.—White copper is practically analogous to German silver. It is a triple alloy of copper, zinc, and nickel. Other metals are present as impurities. The presence of tin in this alloy has been considered to be injurious. It tends to give the alloy a yellow color and render it brittle. Fortunately this sample contains only a small amount of tin. The presence of iron in small quantities is not deleterious. Mr. Hiorns found “one to two per cent of iron to have no deteriorating effect, except with regard to hardness, and the color of the alloy containing twelve per cent of nickel was equal to one containing sixteen per cent, when no iron was present, the same quantity of zinc being used in each case.”

(c) Rape Flower Copper or Yellow Copper of the Best Grade

Sample.—A piece cut from a large sheet. It was brightened by filing and then cut into fine pieces. It was bright yellow like the color of the rape flower, hence its name.

Results of Analysis (Percentages)

	Tin	Lead	Copper	Iron	Zinc
1.	0.137	0.540	70.236	0.784	27.589
2.	0.177	0.521	70.236	0.755	27.379
3.	0.170	0.588	70.510		27.168
4.		0.550	70.675		
5.			70.675		

Average value 0.161 0.545 70.466 0.770 27.379

Conclusions.—Rape Flower Copper is a brass of good grade resembling the standard English brass, which contains seventy per cent of copper and thirty per cent of zinc. The presence of such a small amount of tin has hardly any effect on the alloy. Generally, with one per cent of tin in a brass, its influence is not very great, but as the percentage is increased the action becomes very marked. It tends to harden the alloy, increase its strength, and diminish the extension before fracture.

Good brass should not contain more than 0.5 per cent of lead. This sample exceeds this limitation only a little. The lead tends to reduce both the tensile strength and the extension of the metal. Sometimes, however, lead is intentionally added to make the alloy softer for working. Evidently, such is not the case in this sample. This amount of iron has probably little effect on the alloy. Though its presence has been considered objectionable, nevertheless, it is sometimes added in considerable quantities in certain kinds of bronzes such as, sterro-metal, Aich metal. Sterro-metal consists of Cu 60 %; Zn 38-38.5 % and Fe 1.5-2 %. Aich metal is almost if not quite the same, and what we now call delta metal, which contains varying quantities of iron according to the purpose for which it is to be used. Prof. Roberts-Austen found that a brass having tensile strength of about 20.7 tons at 20° C. had this increased to 25.6 tons by the addition of 1.5 % of iron, and, though both the alloys lost strength very considerably as the temperature was increased, the loss was less with the alloy containing the iron than with that which was free from iron, so that the difference became greater as the temperature rose. This is due to the fact that iron raises the solidifying point of the alloy, and that it also prevents the formation of a eutectic which otherwise forms at a comparatively low temperature.*

(d) Wrought Yellow Copper (No. 1)

Sample.—A thick square piece from Peking. It was deep yellow in color. Sampling was done by boring a number of holes in it.

Results of Analysis (Percentages)

	Arsenic	Antimony	Tin	Lead	Copper	Iron	Aluminum	Zinc
1.	0.433	0.559	0.538	4.029	57.898	1.289	0.113	35.554
2.	0.369	0.759	0.621	4.441	57.600	1.178	0.163	35.068
3.	0.311	0.635		4.528	57.898			35.321
4.				4.457	57.600			
5.				4.514	57.898			
6.					57.898			
7.					57.898			
8.					57.695			

Average value 0.377 0.651 0.580 4.394 57.798 1.234 0.138 35.314

Conclusions.—The amount of arsenic present in this sample exceeds the limit usually allowed. According to Mr. Sperry's investigation, the effects produced by arsenic on the alloy are:

- (1) Arsenic, when present in brass to the extent of over 0.02 per cent, is injurious and causes it to crack on rolling.
- (2) Arsenic produces great fluidity in melted brass.
- (3) Brass containing arsenic makes a cleaner casting than when it is not present.
- (4) When present in an amount not over 0.02 per cent, arsenic imparts ductility to brass, probably by a reduction of the oxide of copper formed during melting.

With exception of bismuth, antimony is the most injurious constituent that can be present in brass, the smallest quantity being objectionable. Antimony hardens the alloy and destroys its ductility, so that it will crack on rolling. For cold drawing brass tubes, or other similar purposes, .01 per cent of antimony renders the metal quite useless, and even .001 per cent is said to be objectionable. For rolling brass high in copper the maximum allowable is about 0.01, and for safety less than 0.005 per cent should be specified to be present in the alloy. Evidently, this sample is unsuitable for all these purposes.

* A eutectic is the portion of any solution or alloy which is last to solidify as the solution is slowly cooled.

The amount of lead that brass will take up is not very large, and it tends to separate on cooling. With 5 per cent or over, the tendency of the lead to separate is marked, and it may be squeezed out during working, and even with smaller quantities it can be detected as a separate constituent under a microscope. So, this sample contains too much lead for a homogeneous alloy.

(e) Wrought Yellow Copper (No. 2)

Sample.—A piece cut from a large sheet. Polished and cut into fine pieces as in previous cases.

Results of Analysis

	Arsenic	Tin	Lead	Copper	Iron	Aluminum	Nickel	Zinc
1.	0.351	0.052	2.755	60.151	0.879	0.464	0.822	34.649
2.		0.064	2.854	60.574	0.853		0.815	34.137
3.			2.766	60.574	0.857			34.750
4.			2.876	60.574	0.891			
5.			2.870	60.363				
6.				60.307				

Aver. value 0.351 0.056 2.824 60.457 0.870 0.464 0.819 34.512

Conclusion.—This sample of brass is better than that from Peking. It contains more copper, less lead and other impurities.

(f) Raw Copper

Sample.—Fine pieces cut from a large one which was polished beforehand.

	Arsenic	Antimony	Tin	Lead	Copper
1.	0.426	0.438	1.182	5.290	60.241
2.	0.350	0.499	1.058	5.238	60.724
3.		0.566		5.320	60.546
4.				5.342	60.546
5.				5.405	
Average value	0.388	0.501	1.120	5.319	60.514

	Iron	Aluminum	Nickel	Zinc
1.	0.903	0.175	0.877	31.948
2.	0.918	0.189	0.800	32.390
3.				32.021
4.				31.976
5.				
Average value	0.911	0.182	0.839	32.584

Conclusion.—The popular name "raw copper" is a misnomer. It is said to be prepared in the same way as "wrought copper." But, it differs from "wrought copper" in that it is invariably brittle. Several shop keepers said that "raw copper" is simply a kind of brass containing more zinc than copper. The high percentage of zinc has been considered as the cause of its brittleness. This sample, however, contains more copper than

zinc, as shown in the above table, though it is quite brittle. This property may be due to the presence of too much lead and other impurities. Further investigation is necessary, before we can decide what is the real cause of the brittleness of "raw copper."

In the above analysis of these samples the methods of sampling were necessarily somewhat unsatisfactory, and failure to get a representative sample would slightly vitiate the results, especially those of the constituents of small percentages.

In spite of this defect this brief study does reveal some interesting facts about the Chinese copper alloys. They are found to be almost similar to those made in western countries. It would be interesting, if possible, to compare the time when the artificial methods of preparing these alloys were independently discovered in these two parts of the world. This analysis of a few samples, however, is by no means exhaustive. There may be other copper alloys such as the Cu-As alloy mentioned above which have no parallels in foreign countries. Further study along this line might result in more valuable information.

As the results of analysis show, these samples contain more or less injurious impurities. So, in order to make better alloys, chemical analysis and scientific methods of preparation are necessary.

Owing to the introduction of modern industries in our country, special copper alloys, such as machinery brasses and bronzes, are going to be more and more in demand for castings, bearings, and other engineering purposes. They need more careful preparation than those used for other purposes and in preparing them chemical research is necessarily called for.

The study of Chinese copper alloys so as to improve the methods of preparation, and to imitate foreign alloys for engineering uses, are problems now confronting us. Only chemical analysis supplemented by the other three methods of research mentioned above can bring about satisfactory solutions. From this standpoint, it is evident that this paper can only serve as a starting point for further study.

"Sound copper" is quite similar to the "bell metal." It is one of the useful bronzes.

"White copper" is practically analogous to German silver. It is a triple alloy of copper, zinc, and nickel.

"Rape Flower copper" is a brass of good grade resembling the standard English brass. It contains only small amounts of impurities.

"Peking Yellow copper" is also a kind of brass. It contains too many impurities. The presence of arsenic and antimony is decidedly injurious to the alloy. It contains too much lead to form a homogeneous mixture.

"Soochow Yellow Copper" is a better brass than that from Peking. It contains more copper, less lead and other impurities.

"Raw Copper" is simply a kind of brass. This sample contains more copper than zinc. Chemical analysis alone cannot determine the cause of its brittleness.

Summary

Average Results of Chemical Analysis

	Arsenic	Antimony	Tin	Lead	Copper	Iron	Aluminum	Nickel	Zinc
Sound Copper	None	None	22.277	None	Trace	None
White Copper	None	None	1.336	3.262	45.807	1.911
Rape Flower Copper	None	None	0.161	0.545	70.467	0.770
Peking Yellow Copper	0.377	0.651	0.580	4.394	57.798	1.234
Soochow Yellow Copper	0.351	None	0.058	2.824	60.457	0.870
Raw Copper	0.388	0.501	1.120	5.319	60.514	0.911

China's Porcelain Industry

Can It Come Back?

Those who know Chinese porcelain, and have taken the time and interest to poke through the supplies of the average crockery store in Shanghai or other of the big cities, and who then have investigated the offerings of a few of the leading curio shops where the proprietor will unblushingly try to sell to the unwary some "genuine and guaranteed" Chien Lung or K'ang Hsi vase or bowl for forty to one hundred dollars, depending upon the eagerness of the prospective buyer—they must sorrow over the departed glory of China's ceramic art and wonder if the kilns of Kingtehchen have grown cold and the artistic fire died out of the Chinese heart. Perhaps they conclude that the proper place to study porcelain is in the museums of the world's capitals or the collections of the wealthy connoisseurs who have paid thousands for pieces that only a few years before were dear at as many hundreds.

Despite such weight of pessimism and in the face of the big output of atrocities that have taken the place of the chaste and beautiful works of the Ming and opening years of the Ching dynasty, the all too little known fact that China took first place against the world at the San Francisco exposition for her porcelain exhibit may be as a paling of the night to herald the coming of a new dawn in this seemingly dead industry. Nor was it on the strength of her ancient wares that China gained the decision, but with copies of the olden artist's work that were strenuously declared to be copies in the face of claims by experts that they were genuinely old. The way this sudden revival came about may be of interest and point the path to a further development and restoration of this supposedly lost handicraft.

Some eighteen years ago Mr. Shen Tun-ho, then a Manchu official, bought several pieces of porcelain, paying good round sums for them, and was later assured by his friends that he had been deceived into buying modern wares and, at that, rank imitations of the old. It was not the first time this had happened to the gentleman in question and he determined never to buy another piece until he was certain that he knew the difference between the old and the imitation. His studies took him into the inner recesses of the Chinese ceramic art, as it were, and he learned that no modern potter can produce the exact tones and shades of the Kang Hsi blue and white ware, for example, with the colors now at his command. This led to the first discovery, which later enabled the new Chinese porcelain to take the palm at four great expositions, San Francisco marking the final triumph.

Even in Kang Hsi's time there were fashions in porcelain, little preferences for certain tones and blends of color on the part of the sovereign, which set all the potters working toward that certain standard. Under the imperial approval, the artists that supplied the household concentrated on certain effects, and as these were for the most part obtained with colors which were given them by Kang Hsi himself, they had little difficulty in filling the orders. To make sure that sufficient colors would be available, the emperor laid in a stock of the raw pigments, and after his death, both his son and grandson did the same, the older colors being allowed to remain in the Imperial storehouse, where they are to this day.

The discovery of a sufficient stock of the ancient raw materials for porcelain painting was the first step in the rejuvenation of China's art ceramic. Having obtained the color, it became a question in



COPY FROM IMPERIAL PALACE COLLECTION
ORNAMENTED WITH FAMOUS SUNG
DYNASTY PAINTING

Mr. Shen's mind whether the body of the ware could be reproduced with the same translucency and perfection of glaze and grace of form. As to the artistic ability of his countrymen, he was assured and knew that they could at least copy whatever was set before them with a fidelity to detail that is unsurpassed. In fact he had the artists already chosen, and when the kiln foremen of Kingtehchen demonstrated their ability to turn out a K'ang Hsi paste glaze, all the elements for the new pottery were present or accounted for.

This was along in 1908, and as the Brussels exposition was then advertised for 1910, some few copies of old vases were made and exhibited. Result, a grand prix. More copies were made and shown at Toulon the following year with the same success. In 1913, the Japanese began preparing for the Taisho exhibition held in Tokyo in 1914. Invitation was given China to participate and Yuan Shih-k'ai ordered an exhibit prepared but delayed the order until only two months before the exhibition opened. To the honour of China's artists be it said that they rose to the occasion so magnificently that the only purchase of Chinese goods made by the Japanese emperor, aside from silks, was a piece of this porcelain, the exhibit winning first prize in the face of seemingly overwhelming competition on the part of Japanese potters.

The comment of the Japanese was illuminating in that one of them declared they must find some way to overcome China's lead in this industry since it was ignoble for Japan to have to go on forever making "Chinaware" when they should be making the name Japan illustrious. The result was a not widely advertised subsidy to the Japanese porcelain industry of half a million yen and the hope of great honours should they succeed in wresting first place from China at the Panama-Pacific Exposition. And they almost did it.

Chang Chien was then Minister of Commerce and he was insistent that Mr. Shen must hold first place for China in the first really vital competition that his revived porcelain would meet. The vision was that if China were successful in America where millionaires are as plentiful as lamas in Tibet, the sale of Chinese porcelain would reach astonishing proportions in no time at all. Chang Chien had little doubts as to the artistic value, but the volume of the Japanese output somewhat bothered him. On learning that Japan used machines, he sent for a sample and tried it out. The results were not encouraging and Mr. Shen's advice that China had better fight with old arts and handwork, than try to use science at the last moment when no one understood the science in the least, was taken. It was a case of rule of thumb against science, and for once in its long and much discredited career, rule of thumb won. But not easily.

In this eagerness to score at San Francisco, the Yuan government was disposed to grant anything that was asked, and Mr. Shen was not only given whatever he wanted from the old Imperial color store-house, but the former Imperial kiln at Kingtehchen was rehabilitated and just a year before the exposition date, the first of 200 pieces was fired. Some were copies of vases from the Manchu collection in the Peking museum, others from private collections, but by far the greater number were reconstructed from colored lithographs of the Morgan collection and from Gorer and Blacker's

magnificent work on Chinese Porcelains and Hard Stones. Eight copies of this latter work were broken up and the colored plates passed over to the artists. It is an actual fact that some of the pieces they turned out from pictures were better than the originals, if the printed reproductions are any criterion.

At any rate the 200 pieces were exhibited and after long deliberation, the judges let it be known that Japan would win. This news came to Shanghai where Mr. Shen was expectantly waiting word of victory. He wired back to ask the judges whether machine-made wares ornamented with German colors could win against China who had made every piece by hand and furthermore had used her own colors. He asked whether real rubies, powdered and blown on with infinite care, did not make a decoration superior to some iron or copper compound that the Japanese knew only in finished form. The wires were kept hot and finally, after breaking several pieces to get at the heart of both body and color, the judges decided that China had won. Japan was second and Austria-Hungary third.

Whether China ever will compete with wares such as those of Sevres or with Haviland's modern applications of porcelain to dinner sets and artistic wares for household use is a question that only time will answer. But as to whether China can come back into leadership where true artistic porcelain is concerned, the answer undoubtedly is—she has. Kingtehchen is still the village of potters whose glowing kilns moved Longfellow to such rhapsodies in his *Keramos*, the clay is still available and the artistic talent that was believed dead has been proved only to have been slumbering. It is now awake and if proper encouragement in the shape of patronage is given, the new porcelain of China may reach such a pitch of excellence that in days to come the Min Kuo period will outrank the finest Ch'ien Lung in the estimation of collectors.

When China, that is the Chinese Government, finally decides to revive the porcelain industry on a large and artistic scale, there is little doubt that Kingtehchen will come into its own again, and the following description of this unique city in all China as written some years ago by Mr. W. J. Clennell of the British Consular service, true today as when he wrote it, may be of interest:

Kingtehchen stands on the left bank of the Peiho river, which here flows from north to south. The site of the town, though well above ordinary water level, is low relatively to most of the surrounding country, so that the violent freshets which frequently come down, both from the upper reaches of the main valley, towards Fouliang and Chimen, and from the two or more large tributaries which converge at this point, expose it to sudden and at times disastrous floods. The town, in fact, lies in a pocket, with hills on all sides, rising to the south and east into noble ranges of mountains at only a few miles distance, and with only a very narrow and inadequate outlet at its south-west corner.

Everything in Kingtehchen either belongs to or is altogether subordinate to the porcelain and earthenware industry. The very houses are for the most part built of fragments of fire-clay (called "lopingtu") that were once part either of old kilns or of the fire-clay covers in which porcelain is stacked during firing. The river bank is covered for miles with a deep stratum of broken chinaware and chips of fire-clay, and, as far as one could judge, the greater part of the town and several square miles of the surrounding country are built over, or composed of, a similar deposit. A great industry, employing hundreds of thousands of hands, does not remain localized in a single spot for 900 years without giving to that spot a character of its own.

This is perhaps what strikes one most forcibly in Kingtehchen that is unlike anything else in China. The forms, the colours, the materials used in the buildings, the atmosphere, are somewhat reminiscent of the poorer parts of Manchester. At present there are 104 pottery kilns in the town, of which some thirty or so actually work the year round. The greater part of the kilns work only for a comparatively short season every summer. During this busy season, when every kiln is perhaps employing an average of 100 to 200 men, the population of Kingtehchen rises to about 400,000, but of this nearly, if not quite, half are labourers drawn from a wide area of country—chiefly from Tuchang district—who come only for the season, live in rows of barrack-like sheds, and do not bring their families with them.

But, apart from the kilns, one passes along street after street where every shop is occupied by men, women, and children all engaged in the designing, moulding, painting, or distributing of pottery. Potters' sheds, where the clay is mixed and moulded on the wheel, seem innumerable. The river bank is crowded for three miles by junks either landing material and fuel or shipping the finished product. Shops for the retail sale of the ware, though numerous, are less in evidence than might have been expected, and the wholesale trade,



REPRODUCTIONS OF PAIR OF CHIEN LUNG FAMILIE ROSE FLOWER POTS
FROM ORIGINALS FURNISHED BY YUAN SHIH-KAI

which is in the hands of guilds, makes little display. Apart from the meeting halls of these guilds there are scarcely any buildings with any architectural pretension, but the guild halls are rich and elaborate structures.

The kilns are fed exclusively with wood fuel and the transport of firewood, about 30,000 piculs a day, is naturally a large industry in itself. For each firing the kilns are kept alight and fed with fuel for about 36 hours, when the fact that a sufficient heat has been attained is made known by the colour of the smoke that issues from the chimney, changing from black to a bluish white. The kiln is then allowed to cool, and after another 36 hours or so the contents can be removed. All the kilns appear to be much the same construction. They are built in an oval shape with thick walls, a clay or common brick outside and fireclay within, and are surmounted by chimneys of some 30 to 40 feet in height, 8 feet wide at the base, and tapering to 4 or 5 feet at the top. The bricks at the top of the chimneys are never laid to an even height all. This is generally on the north side, but there are exceptions to this rule. The roofs and chimneys of the kilns seemed to be very flimsily constructed. They are pulled down and rebuilt at frequent intervals, generally, it would seem every year. The furnace is fed through a door in front about 6 or 7 feet above the ground, and three men are kept occupied in throwing in the wood, which seems to be consumed at the rate of about 60 to 100 lbs. a minute. Under this aperture is a draught for removal of ash. A little above the stokehole are two eyes, that is, round panels of fireclay, which become white hot and apparently transparent, and from the condition and appearance of which the workmen are able to judge the temperature of the kiln.

The porcelain and pottery made at Kingtehchen is composed of a mixture, in different proportions according to the quality or nature of the article desired, of two minerals, called respectively "kaolintu" (kaolin) and "paituntzu" (petuntse), with a small proportion—about one in a thousand—of "shihkiao" (gypsum) added. Kaolin is the hydrated silicate of alumina decomposed, pounded in a mill, precipitated in a series of water-troughs, then dried and moulded in bricks. It is the necessary base of all their pottery. Petuntse is unhydrated silicate of alumina also pulverized and pressed into bricks. It is fusible in the heat of the kiln, and when used in a sufficient proportion its vitrification causes the resultant porcelain to be translucent. The higher the proportion of petuntse, the nearer is the porcelain to transparency, but a limit is fixed to the quantity that it is possible to use by the fact that a vessel deficient in kaolin would lose its form. Much work, especially in the higher grades of ware, is, in fact, spoilt and wasted through this cause. Perfectly formed pieces are placed in the kiln, and then overheated, with the result that they come out damaged and partly melted out of shape.

After being dried, and before firing, the pottery is washed over with a coating, more or less thick, of a glazing material formed of the powder of a third mineral, called "yukuo"—also a silicate of some sort—mixed with the ashes of a sort of fern called "lanchihui." The vitrification, in the heat of the furnace, of this "yukuo" gives the polished surface.

Articles for which only one or a few colours are required are painted before firing, as, for instance, the common blue and blue-and-white ware. This blue is obtained with mineral pigment made from a greyish, almost black substance, which seemed to be an ore of cobalt. Before firing it does not appear as a blue tint at all, but as a grey, the blue being due to a chemical change under the influence of heat. Several other colours also result from chemical action during firing. In some cases, e.g., in the (real or imitation) *sangdeboen* ware, the colouring matter is mixed with the glaze, or is itself more or less fusible. The greater or less melting of the glaze or the colour in these cases gives rise to a great variety of effects—or defects—some of them very beautiful, and all of them quite incalculable beforehand. Besides local and other Chinese colours, many of the colouring matters are imported from Japan and some

from Europe. Most of the colours are simply mixed with water, e.g., the common blue, and laid on with a brush, but some of the reds and a few others are mixed in the resin of a tree called *fengshu*, a name that seems to cover several varieties of maple and also *liquidambar formosana*.

For polychrome work some or all of the colouring has to be deferred until after the piece has been fired. It is then laid on over the glaze, and, to judge from a sample, the colours are mixed with *yukou*. When the painting is complete it is then re-fired, but not in a kiln. For this second firing a much smaller furnace—called a *lu*, not a *yao*, the name for the greater furnace—is sufficient.

Although stencil plates are in use for some of the coarser work and simpler patterns, all the painting and drawing of any delicacy is done by hand. The ware with transparent interstices, known in Kiukiang as "rice pattern," is made by cutting little holes in the unbaked paste and leaving them to be filled in the firing by the fusing and running of the glaze. The transparent parts are, in fact, pure *yukuo*. Some of the stippling effects are the result of blowing the colour upon the surface of the porcelain through a tube.

The potter's wheel as seen at Kingtehchen, is an extremely simple and primitive arrangement. Under a low shed half-a-dozen workmen will be seen each seated by a plain round table that revolves on a rude wooden socket by means of the impulse that he gives it with a piece of stick or a simple treadle-and-rope arrangement. Taking a lump of clay in his hand, he places it on the middle of the table, and, with a few deft touches of the hand, moulds it as required. Simple bowls and such-like are made entirely at one table. More complicated pieces are made in parts, which are then carried in a tray to another shed, where a second workman finishes and fixes them together by the simple process of wetting their edges, superimposing them, and giving them a few more turns of the wheel, paring off whatever clay may be in excess. Then they go a bit further along the line of sheds to the artists, who paint the pattern. Simple patterns are painted in the moulding sheds, but much, and apparently all, the more delicate work is done in shops along the street, much of it by women.

Besides several private establishments, the former Imperial kilns were visited. They are approached by a wide street or elongated square, called Yu-yao Ch'ang, with pottery shops on either side, and imposing *pailous* at both ends. At the northern end of this street is the entrance to the State establishment and the official residence of the superintendents. Behind this are the modelling sheds, differing in no important respect from others in the town. This is backed by a large mound or small hill, an accumulation of debris, overgrown by many large trees—in fact, quite a picturesque bit of garden in the midst of this rather murky town. Just beyond this hill are the kilns, two in number. They were not working—in fact, not entirely rebuilt—so that the interior arrangement of the furnaces could be examined.

Kingtehchen, though the second town of Kiangsi at all times, and the first when the kilns are busy, is not the capital of any administrative district. Two or three miles outside Kingtehchen, and hidden by some hills, is a large town of 20,000 or 30,000 people, called Litsun. This place also contains pottery kilns, the smoke of which was visible from the hill at the back of the Catholic Mission. That hill, by the way, commands an excellent general panorama of the whole town.

The kaolin, *petuntse*, and *yukuo* used in the pottery works are obtained from a great number of districts in addition to the immediate neighbourhood (Fouliang Hsien). Some come from over the Anhui border, from Chimen, by road, and from Tungliu by junk via the Yangtze and Poyang Lake. Much more is quarried on the foot-hills of the Lushan near Nanking, where a large new quarry was started last year. Yet more comes from two places called Meichiang and Huangchinpu in the valley of the Kuanghsin River, a few miles below Anjen, and there may be other sources as well. At all or most of these places the pulverized rock is precipitated in troughs, and made into bricks for transport to Kingtehchen.

It is not easy to form an estimate of the average output of the potteries. The chinaware that passes out through the Customs at Kiukiang for export by steamer, either to foreign countries or to Chinese ports, is but a small fraction, probably not above a sixth of the whole. Probably as much more goes out through Kiukiang, but not in the way of commerce through the Customs. Formerly the tribute porcelain which was forwarded to the Court by the Taotai, who was ex-officio head superintendent of the Imperial kilns, once amounted to 800 tubs, each containing, perhaps, a hundredweight of fine porcelain. There are also the many articles bought retail and taken away as personal effects of travellers. In this way perhaps a third of the output leaves the province through Kiukiang. At least as much goes south by junk through Nanchang and up the Kan River, Canton being generally the ultimate destination. A great deal more goes by road to Chimen, 60 miles, and to Wuyuan, 45 miles, whence it is passed on to Hangchow, Soochow, Shanghai,



CHIEN LUNG PERIOD PORCELAINS REPRODUCED FROM COLORED PHOTOGRAPHS AND DECLARED BY CONNOISSEURS TO EQUAL THE ORIGINALS



COPIES OF CHIEN LUNG PORCELAIN MADE IN IMITATION OF ANCIENT BRONZE PIECES

etc., and some goes overland to Hukou, Pentse, or Tungliu for shipment by junk on the Yangtze. People have the impression that Kiukiang is the port of shipment of Kingtehchen pottery, and are apt to infer from the figures in the Kiukiang trade returns that the business cannot be a very big one. But if the Kiukiang trade returns figures are multiplied, at least by six, and perhaps by seven or eight, so that the total is about £50,000 a year, the dimensions of the industry are seen to be more respectable. Even so, it is difficult to see how a population of several hundred thousands, with many more employed in carriage and distribution all over the Empire, live on the profits.

Ship for France Launched in Japan

The S. S. *Mechanicien Donzel*, ordered by the Asano Shipbuilding Company and bought by the Messageries Maritimes, has been launched at the Uruga Dockyard. She is a steel freighter of 8,200 tons gross, 445 ft. in length, 58 ft. in breadth, and 40 ft. in depth.

This vessel is named after the heroic *Mechanicien Donzel*, of the M.M. liner *Athos*, which was torpedoed by an enemy submarine on February 7 last on her way to Marseilles from Yokohama.

Other new vessels built or bought by this French steamship company bear names of historic association, including the *Lieutenant de Messiesy*, which was built at Seattle and recently left Yokohama for Marseilles.

❁ Glimpses of Korea along the Chosen Railways ❁



SKIETING THE RIVER KAN



RYORA-TO ISLAND, HEIJO



COAL WHARVES AT CHINNAMPO



THE PORT OF MOPPO



A PLEASURE BOAT ON THE DAIDO-KO



A TIMBER STATION AT SHINGISHU



GENERAL OFFICES OF THE SOUTH MANCHURIA RAILWAY, DAIREN



THE YAMATO HOTEL, DAIREN

The Railways of Manchuria and Korea

Probable Instruments of War Which Do Valuable Work in Times of Peace

The South Manchurian and Chosen (Korea) railways, which have become noted as an important and up-to-date section of the world's greatest railway system, that of the vast Eurasian Continent, are once again brought before the public eye as probable instruments of war. By these lines will be effected much of the transportation in connection with the military operations which Japan will undertake if she employs her strength in the straightening out of the muddle in Siberia and eastern Russia. In the event of this far-reaching development Japan will have at her hand a remarkably efficient service. Money, energy, and scientific skill have not been spared by Japan since the conclusion of her war with Russia to make the railways potential in peace, and now, if they become once more roads to war, they will be found equally efficient—and to the last degree.

The final section of the main line through Korea and the Antung-Mukden line were born of war. As a light line the latter was constructed by the Japanese military engineers to convey the armies of Japan to the fields of Manchuria where the Russian hordes were overthrown. It was run across the mountains in an extraordinarily short space of time and zigzagged its way through the valleys and over the ranges wherever hold could be secured, sometimes precariously clinging to the steepest of mountain sides and most times awe-inspiring as a means of transportation to those compelled to travel over it.

As an engineering feat the construction of this line was a triumph, and no less a triumph was the ultimate conversion of it to purposes of peace. The work of reconstruction was commenced in August, 1909, and cost ¥17,561,000 (over 13¼ million pounds). Over 20,000 men were employed on the work at the same time. The main line from Mukden to Antung is 170 miles in length, in addition to which there are thirty-five miles of sidings. For about 135 miles the line runs through mountainous districts, which taxed the engineering skill of the company to the utmost. As many as 205 bridges had to be erected, of an aggregate length of 22,754 feet, the longest being that over the river Taitze of 1,786 feet. To avoid the steep gradients of the original line, twenty-four tunnels were bored, of an aggregate length of 26,579 feet, the four main tunnels being Fuchinling, 4,884 feet (between Chiaotou and Fuchin), Chikuanshan, 3,254 feet, and Heikengling, 1,505 feet (between Chikuan-

shan and Chiumuchuang), and Fenshuiling, 1,914 feet (between Tsaohokou and Chichiapu). There are also 213 culverts, aggregating 3,608 feet. Simultaneously with the opening of this new line on the standard gauge, the opening of the new railway bridge across the river Yalu was celebrated on November 1, 1911. This bridge, which is the most gigantic work of its kind in the Far East, being 3,097 feet long, was commenced in August, 1909.

In the war this line proved the chief factor in Japan's victory; in the years of peace that have ensued in this region since 1905 it has, with the South Manchuria Company's lines and the Chosen system, been a means of demonstrating to a vast slice of backward country the enormous value of modern methods of transport in development of hitherto untouched or unmarkable natural resources, while at the same time the system under the control of Japan has proved to the world at large how readily distance may be annihilated and how easily may the dictum of Kipling be falsified that "the East is East and the West is West, and never the twain shall meet." Not only has the Japanese system become an important integral part of the greatest railway service in the world, affording in the piping times of peace a rapid medium of intercourse between the East and the West, but it also, by virtue of its connection with the growing railway system of China, furnishes a not to be underestimated link for the closer unity of the two greatest of Oriental peoples. The arrangements for through booking from China to Japan, and vice versa (as well as from China and Japan to Europe, and vice versa), places at the disposal of all Chinese and Japanese in particular an easy means of closer association which is being more and more used. The rise of Japan to national eminence of the first magnitude has evoked a spirit of inquiry among the thoughtful of the people of sluggard China, and increasing numbers of them are trending

Eastwards to see what they can see and learn what they may. As time goes on this movement will increase, and if the Chinese can have driven home to them no more than the significance of the constructive work of the Japanese and the importance of the development of their economic resources, the lessons will be of national value to China in the ultimate. The Chinese need some fillip, and the sight of the rise of Japan may give it to them, if nothing else will. The Chinese have no one to blame but



FIRST CLASS CARRIAGE ON THE SOUTH MANCHURIA RAILWAY



PANORAMA OF PENCHIHU, THE GREAT COLLIFRY AND STEEL MILL TOWN

themselves if they do not avail themselves of the opportunity to fare forth and see what is to be seen which the perfected railway system between China Proper, Manchuria, and Korea presents to them. Every facility for the journey is provided, and on the Japanese controlled lines at least are to be found conveniences second to none in the world.

To see what has been done in the way of railway development in Manchuria and Korea, and what has been done by the railway in developing those two hitherto backward countries is worth a visit by all patriotic Chinese.

The South Manchuria Railway Company has laid itself out to build up its railway service, and properly to do that it has devoted great sums of money to the promotion of industries and the expansion of agricultural effort. All along the railway zone, as a result, are to be noted the signs of industrial and agricultural progress. Capitalists are encouraged to invest their wealth, and laborers to employ their brawn, and this has been done to such purpose that Manchuria stands out in striking contrast with China proper as a field of enterprise. The romance of the soya bean alone is striking testimony to the foresight and energy of the Japanese, while the coal and iron mines, the minor industries constantly being promoted and developed, and the general effort to organize the economic wealth of the territory affords the student much to ponder over. Old towns have grown in importance, new ones have sprung up, and in general the shifting of trade centers caused by the development has been nothing short of remarkable.

Details of the Company

The following details with regard to the South Manchuria Railway Company were written by United States Commercial Attaché A. W. Ferrin, now at Peking:

By a stroke of the pen on August 1, 1917, the South Manchuria Railway Company more than doubled its operated mileage and became de jure what it had long been de facto, one of the great railway systems of the world. On that day was signed the agreement that placed the 1,000 miles of railways in Korea under the management of the South Manchuria Railway Company, giving the latter a through line under its own management from Fusan, the Korean port nearest Japan, to Changchun (Kwanchengtze), Manchuria, where connection with the Russian railway system to Harbin and thence to Petrograd is effected. To one who is familiar with the geography of Korea and Manchuria, the significance of this far eastern railway merger is obvious.

Under this plan, all the main points of which took effect August 1, the direction of the South Manchuria Railway (including the Korean lines), the Japanese gendarmerie in southern Manchuria, and the Japanese consular service in that province are intrusted to the governor of the Japanese Leased Territory.

Colonization and Banking Activities

The Governor General commented on the drawing together of the Government of Chosen (Korea) and that of the Leased Territory through the Chosen railways, stating that the activities of the Oriental Colonization Company and the Bank of Chosen in Manchuria "will also afford fresh opportunities to bring South Manchuria and Chosen to a better mutual understanding."

The Oriental Colonization Company, which was organized for the development of Korea, has not yet done much in Manchuria, but the Bank of Chosen has already established ten branches there, and is empowered to issue circulating notes for Manchurian use. One might do considerable traveling in southern Manchuria without discovering that there was any kind of money except Bank of Chosen notes, while a very important part of the discount business in cities along the railway line is done by the branches of this bank. The South Manchuria Railway, however, is the most evident, and probably the most effective factor in the Japanese economic development in Manchuria.

The South Manchuria Railway was originally a part of the Chinese Eastern, built by Russia to connect the Trans-Siberian line with the mild-temperature ports of Dalny (Dairen) and Port Arthur. By article 6 of the treaty of peace which concluded the Russo-Japanese War, the Russian main line from Changchun to Dalny, with all properties, including coal mines, formerly owned by Russia, passed into the hands of the Japanese Government in September, 1905. Early in the following year, the South Manchuria Railway Company was organized, with an authorized capital of 200,000,000 yen (about \$100,000,000) divided into 1,000,000 shares.

Japanese Government Guarantees Dividend

The Japanese Government turned over to the new company all the acquired railway property in Manchuria, at a valuation of 100,000,000 yen, for which it took 500,000 shares, or half the authorized capital of the South Manchuria Railway in payment. The other 500,000 shares were allocated to the public, the Japanese Government guaranteeing an annual dividend of 6 per cent. The first issue of public shares was limited to 100,000, and was oversubscribed 1,066 times. Further issues were made from time to time, as the company needed money for extension work, and 300,000 shares are now in the hands of the public. The shareholders are receiving not only the guaranteed dividend of 6 per cent per annum, but also a supplementary dividend of 2 per cent. Dividends to the Government on its 500,000 shares are limited to five per cent per annum.

Besides selling stock to obtain money for the reconstruction and development of the system, the company at various times has issued and sold debentures, principal and interest guaranteed by the Japanese Government, all of which are floated in London, as follows:

First issue, £4,000,000 (\$19,466,000), dated July 19, 1907, redeemable within 25 years; interest 5 per cent.



WHICH IS GROWING UP IN A RICH MANCHURIAN OIL DISTRICT

Second issue, £2,000,000 (\$9,733,000), dated June 1, 1908, redeemable within three years; interest 5 per cent.

Third issue, £2,000,000, dated December 16, 1908, redeemable July 23, 1932; interest 5 per cent.

Fourth issue, £6,000,000 (\$29,199,000), dated January 1, 1911, and repayable January 1, 1936; interest 4½ per cent.

From the proceeds of the fourth issue, the notes issued in June, 1908, were paid off. The outstanding debentures on March 31, 1917, therefore, were equally divided between 5 and 4½ per cent issues, with £6,000,000 of each. At par of exchange the total is equal to 117,156,000 gold yen.

The railways acquired by the Government from Russia and turned over to the South Manchuria Railway Company were: Main line, Changchun to Dairen, 437½ miles; Port Arthur branch line, 28.8 miles; Liushutun branch line, 3.6 miles; Yingkou branch line, 13.4 miles; Yentai branch line, 9.7 miles; Fushun branch line, 38.9 miles; Mukden-Antung line, 189 miles.

Progress on Reconstruction of Lines

The gauge of these lines, except the Mukden-Antung, was 3 feet 6 inches. The Mukden-Antung line was a light railway of only 2 feet 6 inches in gauge.

Immediately after beginning operations, the South Manchuria Railway Company started on the reconstruction of the lines which were 3 feet 6 inches to the standard gauge of 4 feet 8½ inches, and by June 1, 1908, the entire main line and the Fushun and Yingkou branches had been rebuilt. The main line had also been double-tracked between Dairen and Suchiatun, 238½ miles. Work on the reconstruction of the Mukden-Antung light railway was then begun, and by November, 1911, this line had also been entirely reconstructed to standard gauge with heavy rails. In the meantime the short lines in Manchuria had been rebuilt.

The improvement of the Mukden-Antung line made possible the running of through passenger trains from the Chosen (Korea) railways to Changchun, and such trains were run three times a week up to the beginning of the European War, when the service was curtailed to one through express a week from Fusan to Changchun, connecting with the Trans-Siberian Railway over the Chinese Eastern from Changchun to Harbin. Two trains a day, however, make close connections at Antung-Shingishu, on the Korean border, with South Manchurian trains connecting with the Chinese Eastern at Changchun. These same trains are also met at Fusan by steamers from Shimonoseki which connect there with the two trains de luxe on the Imperial Japanese railways, so that it is possible to go through with little loss of time for changes from Tokyo to Harbin every day in the week. Now that the management of the Chosen railways has been intrusted to the South Manchuria Railway Company, it is probable that through trains will be run daily from Fusan to Changchun without change of cars.

Additional Service by Steamers

In addition to the extension of its passenger service to Japan, through Korea, the South Manchuria has also, by means of steamers owned or chartered, opened a twice-a-week service from Dairen to Shanghai, one of these ships now stopping each way at Tsingtau, the port in the Shantung Peninsula that was captured from Germany at the beginning of the war. The company also runs boats to Chefoo and other ports on the Gulf of Pechili.

In connection with the passenger service, large European-style hotels are maintained by the company at Changchun, Mukden, and Dairen. These, with the Chosen Railway hotels at Fusan, Seoul, and Shingishu, will now be put under one manager, appointed by the South Manchuria Railway Company.

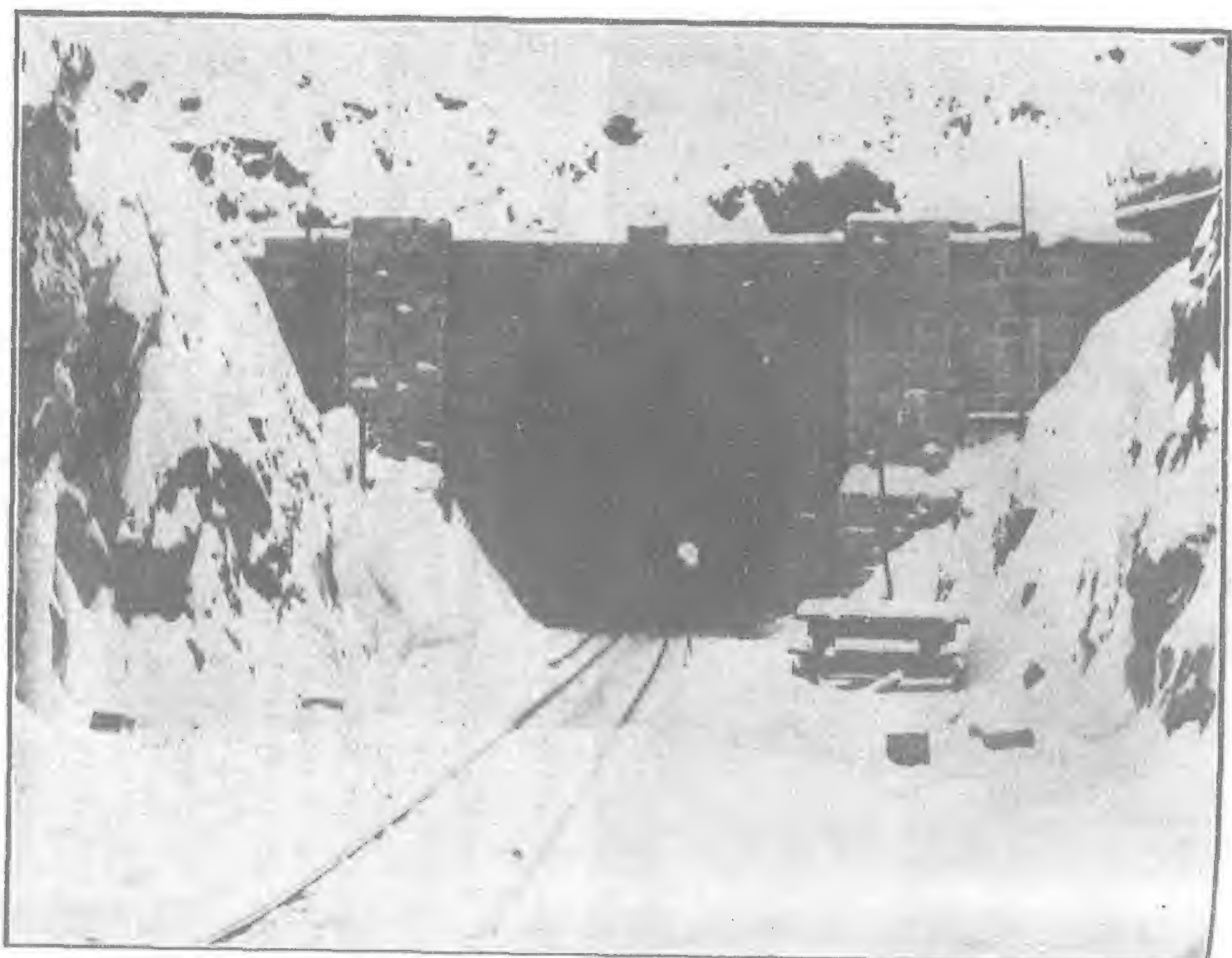
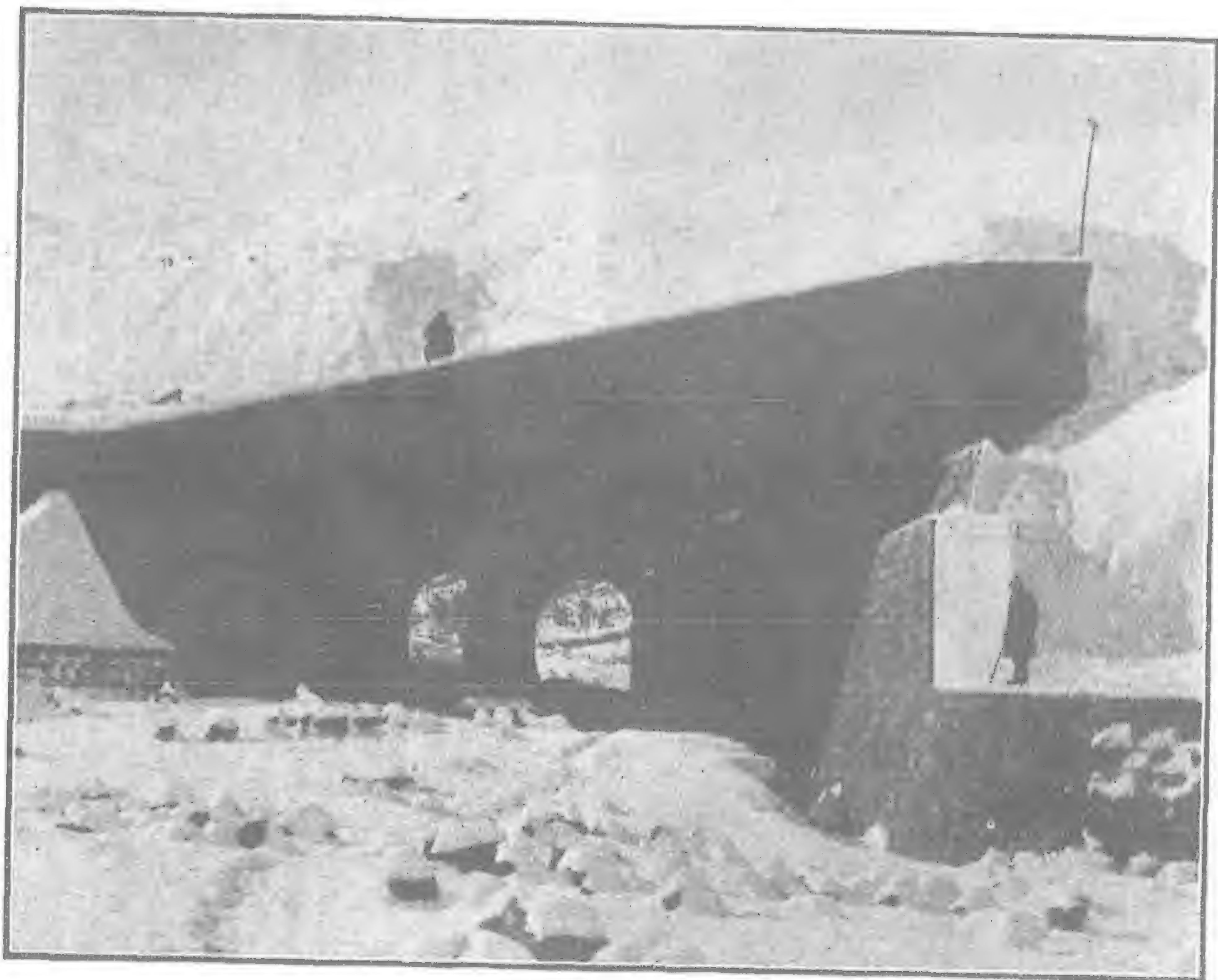
The largest element in the growing freight traffic of the South Manchuria is the soy bean, which is transported from northern



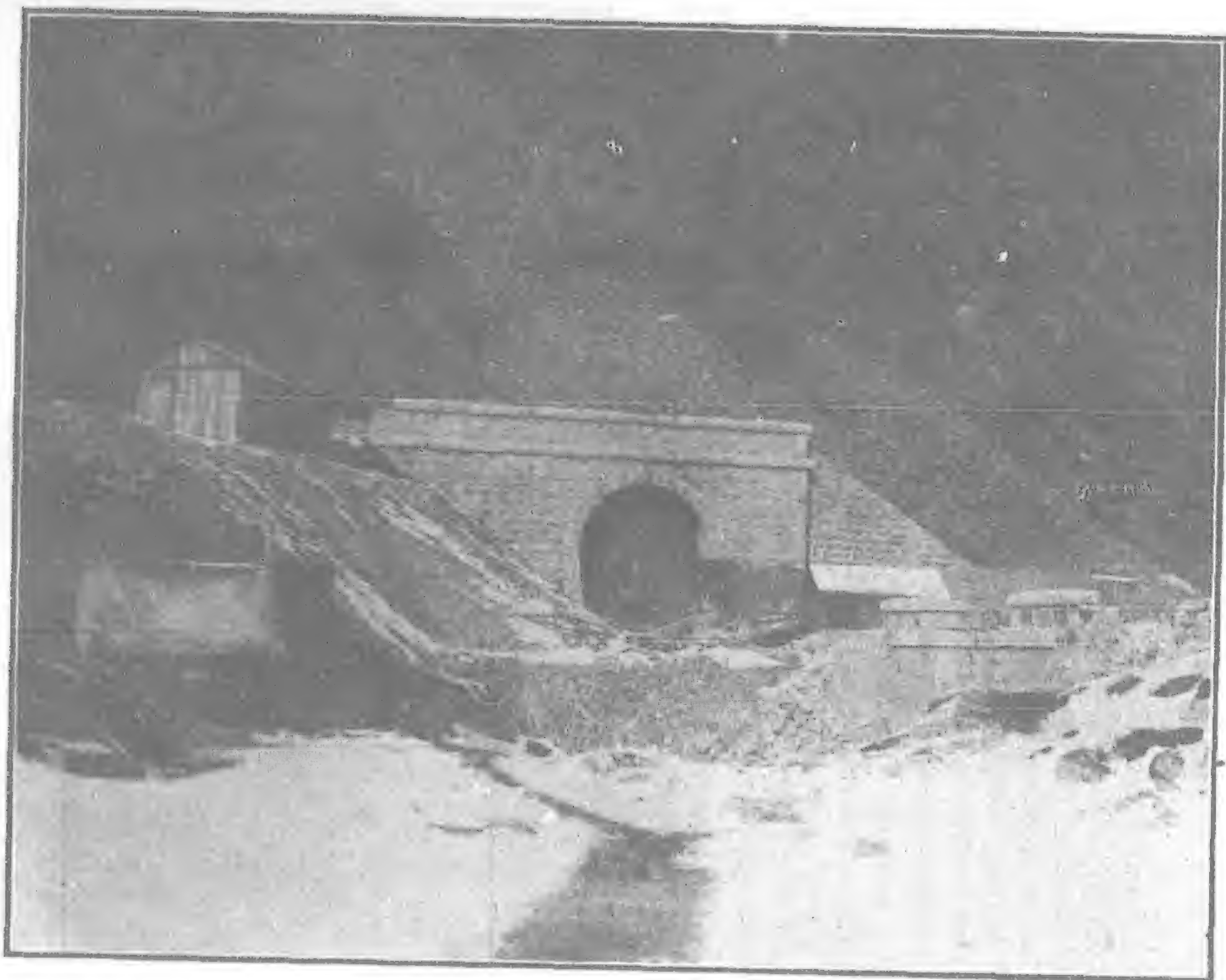
BRIDGE AND TUNNEL, MUKDEN-ANTUNG LINE

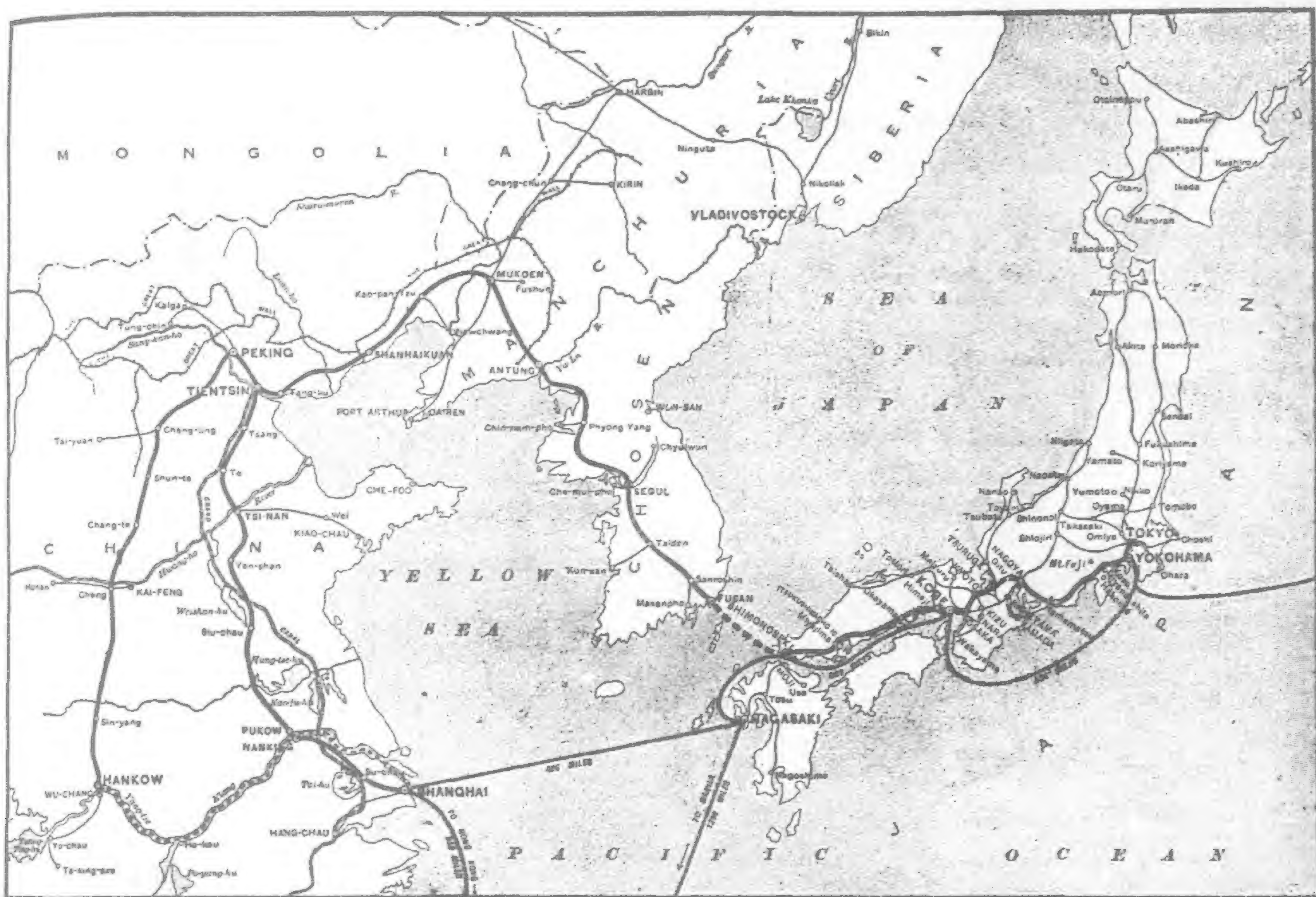


BRIDGE NEAR PENCHIHU, MUKDEN-ANTUNG LINE



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IMPORTANT LINES IN THE THROUGH TRAFFIC SYSTEM OF EAST ASIA, WHICH INCLUDES JAPANESE, KOREAN, MANCHURIAN, AND CHINESE RAILWAYS

Manchuria to Dairen, where 60 bean-oil mills produce the oil, which is mainly exported to America, and bean cake, which is the great Far Eastern fertilizer. Large harbor works, which the Russians began, have been about completed by the Japanese, and Dairen is becoming a very important port. Direct service with America is now being talked of, to be composed of special bean-oil ships. From Mukden southward corn is the chief Manchurian product, the country traversed by this part of the railway bearing a very close resemblance to the corn-growing states of America. Traffic in general merchandise is, of course, rapidly increasing as Manchuria develops.

Locomotives, cars, and their equipment taken from the Russians became obsolete for Manchuria as soon as the railway gauge was changed and were sent to Japan to be used on the narrow-gauge lines there. New equipment was bought in America and Europe, but in decreasing quantities, as the railway's own shops at Dairen grew. In 1908 the company began the construction of a new and modern car and engine manufactory at Shakako,* a suburb of Dairen, and this plant, completed in August, 1911, now supplies practically all the needs of the company. The Shakako establishment also makes modern trolley cars for the city of Dairen, and it is expected that it will develop an export business in steam and electric railway equipment. The trolley service in Dairen is part of the South Manchuria Railway, and so are the gas works. The company has also established electric works at Mukden, Changchun, and Antung.

Railway Mines Its Own Coal

The South Manchuria Railway Company mines its own coal, mainly at Fushun, which is twenty-two miles east of Mukden. The Fushun mines, which were taken from the Russians, are said

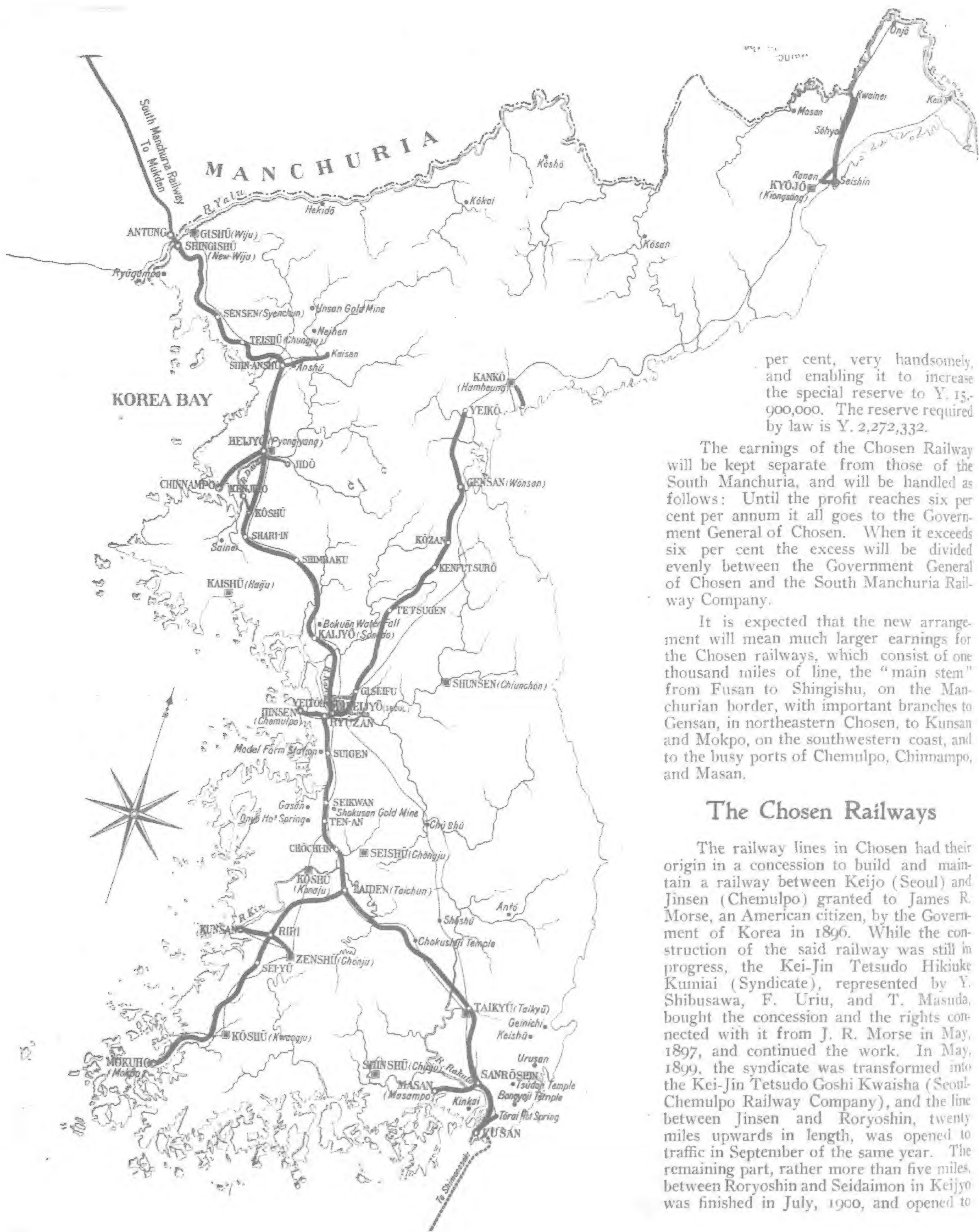
to contain 800,000,000 tons of very good coal, which the South Manchuria Railway Company not only uses itself, but also exports from Port Arthur, and sells locally to bean-oil mills and other factories in Manchuria. It has, besides, mines at Yentai, ten miles off the main line south of Mukden.

Under agreements with China which were inherited from Russia, and others which have since been made by Japan, the railway line is policed by Japan, and large sections of all the towns along the lines are conceded to the South Manchuria Railway, which is developing them into purely Japanese cities, but with modern improvements which are not possible in the older congested cities of Japan. The Japanese seem to have used the plans of the Russians at Dalny as models. They have made the city a very beautiful place, carrying out the Russian design, and are doing similar things at Mukden and twenty-one other cities in Manchuria outside the Leased Territory. The control of these cities will henceforth be vested in the Government General of the Leased Territory, and the differentiation of Manchuria proper, at least along the railway, from the Leased Territory on the peninsula will be less and less as time goes by.

Large Earnings Since Outbreak of War

The earnings of the South Manchuria Railway, which have steadily grown since its organization, have been exceptionally large since the outbreak of the European War, partly because of increased traffic with Russia, and partly because of the lessened competition of the Chinese Government lines. Gross earnings for the year ended March 31, 1917, were Y. 52,700,453. After the payment of all expenses and of Y. 5,862,954 interest on debentures, and the writing off of the year's share of the discount on the debentures, Y. 1,360,186, the company had a balance of Y. 10,107,697, covering the dividend to the Government at the rate of five per cent, and to other shareholders at the rate of eight

*These workshops were fully described in the February, 1918, issue of the FAR EASTERN REVIEW.



per cent, very handsomely, and enabling it to increase the special reserve to Y. 15,900,000. The reserve required by law is Y. 2,272,332.

The earnings of the Chosen Railway will be kept separate from those of the South Manchuria, and will be handled as follows: Until the profit reaches six per cent per annum it all goes to the Government General of Chosen. When it exceeds six per cent the excess will be divided evenly between the Government General of Chosen and the South Manchuria Railway Company.

It is expected that the new arrangement will mean much larger earnings for the Chosen railways, which consist of one thousand miles of line, the "main stem" from Fusan to Shingishu, on the Manchurian border, with important branches to Gensan, in northeastern Chosen, to Kusan and Mokpo, on the southwestern coast, and to the busy ports of Chemulpo, Chinnampo, and Masan.

The Chosen Railways

The railway lines in Chosen had their origin in a concession to build and maintain a railway between Keijo (Seoul) and Jinsen (Chemulpo) granted to James R. Morse, an American citizen, by the Government of Korea in 1896. While the construction of the said railway was still in progress, the Kei-Jin Tetsudo Hikiuke Kumiai (Syndicate), represented by Y. Shibusawa, F. Uriu, and T. Masuda, bought the concession and the rights connected with it from J. R. Morse in May, 1897, and continued the work. In May, 1899, the syndicate was transformed into the Kei-Jin Tetsudo Goshi Kwaisha (Seoul-Chemulpo Railway Company), and the line between Jinsen and Roryoshin, twenty miles upwards in length, was opened to traffic in September of the same year. The remaining part, rather more than five miles, between Roryoshin and Seidaimon in Keijyo was finished in July, 1900, and opened to

traffic, thus completing the railway between Jinsen and Keijyo.

The construction of the line between Keijyo and Fusan (Kei-Fu Line) was taken up in August, 1901, by the Kei-Fu Tetsudo Kabushiki Kwaisha (Seoul-Fusan Railway Company) under the terms of a treaty signed between Japan and Korea in August, 1894, as well as of a contract entered into between the Korean Government and the company in September, 1898, and the whole line, more than 267 miles long, was finished and opened to traffic in January, 1905, while the same company purchased the Kei-Jin Line in October, 1903.

The construction of the Kei-Gi (Keijyo-Shingishu) Line and the Masan Line was taken up by the Temporary Railway Department of the Army (Rinji Gunyo Tetsudo Kambu) in February, 1904, and the former was opened by March, 1906, and the latter by May, 1905, but neither of these lines were opened to general traffic until April, 1908.

When the nationalization of the railways in Japan was decided upon in 1906, the Imperial Government of Japan purchased first of all the Kei-Fu and Kei-Jin lines (293.6 miles), and the Railway Bureau of the Residency-General of Korea was established at the same time. In September of the same year the Kei-Gi (332.9 miles) and Masan (25 miles) lines were transferred to the superintendence of the Railway Bureau. The railways in Chosen came under the jurisdiction of the Imperial Government railways of Japan in December, 1909. In October, 1910, they were transferred to the jurisdiction of the Government-General of Chosen, and on July 31, 1917, the management was intrusted to the South Manchuria Railway Company.

The construction of the railways in Chosen was carried on very hurriedly, the object at the time being to connect the extreme south with the extreme north of the country as quickly as possible, and to connect a few of the important seaports with the trunk line by means of branches. Within a few years of completion, however, reconstruction of the lines was taken up and finished in due course, and, with the completion of the railway bridge over the river Yalu and the reconstruction of the Antung-Mukden Line, the railways in Chosen began to assume world-wide importance as a link in the communication system between Europe and Asia, by way of the South Manchuria and Chinese Eastern lines.

At the same time the Konan (Taiden-Mokuho), Kei-Gen (Keijo-Gensan), and Hei-Nan (Heijyo-Chinnampo) lines, 348.3 miles in total length, were finished, and 12.5 miles of Gensan-Bunsen section of the Kankyo Line (379 miles) was opened to general traffic, all for the development of the country.

In the fiscal year 1916, work on the Bunsen-Yeiko section of 21.4 miles and the Seishin-Sohyo section of 32.2 miles was carried on, while the total line from Seishin to Kwainei, 58.1 miles, was completed and opened to traffic on November 25, 1917.

Thus the railways in Chosen show practical simplicity as industrial lines, while, on the other hand, they offer the excellent accommodation required of them as part of the round-the-world communication system. The attainment of these two objects has always been kept in view and will be more so than ever in future.

Traffic Mileage

The total traffic mileage at the end of the fiscal year 1915 reached 1,006.5 miles, showing an increase of 368.6 miles when

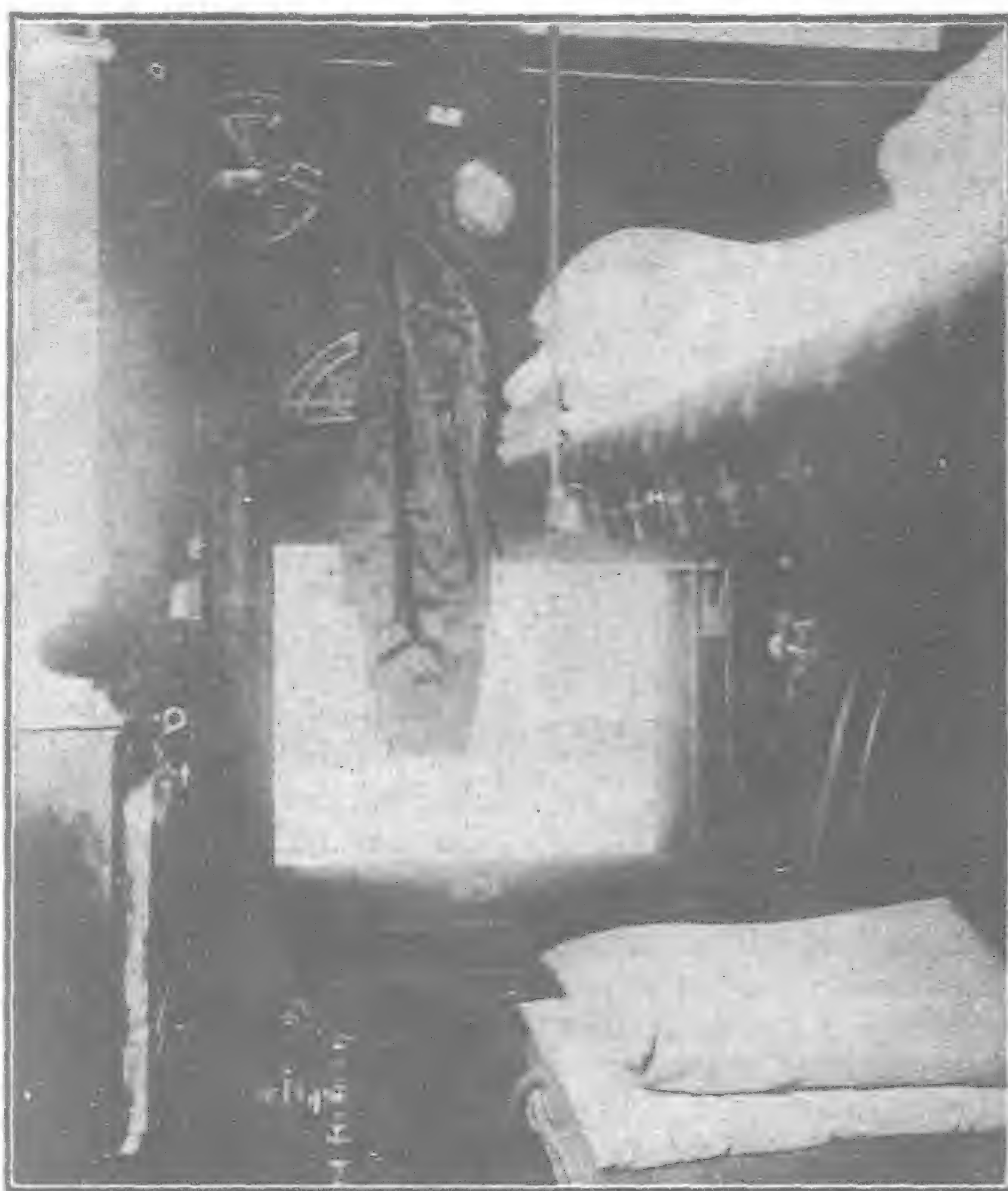
compared with that at the end of the fiscal year 1906, while at the end of 1917 it stood at 1,092 miles. The traffic mileage of each line is as follows:

Keijo-Fusan Line				Miles
Main line (Seidaimon-Fusan)	..	..	..	281.2
Masan branch (Sanroshin-Masan)	..	..	..	24.8
Jinsen branch (Yeitoho-Jinsen)	..	..	..	18.4
Total	..	..	..	324.4

Keijo-Shingishu Line				Miles
Main line (Ryuzan-Antung)	..	..	..	310.9
Kenjiho branch (Kwoshu-Kenjiho)	..	..	..	8.2
Chinnampo branch (Heijo-Chinnampo)	..	..	..	34.3
Jido branch (Heijo-Jido)	..	..	..	6.7
Shingishu freight branch	..	..	..	1.1
Total	..	..	..	361.2

Konan Line				Miles
Main line (Taiden-Mokpo)	..	..	..	161.7
Kunsan branch (Riri-Kunsan)	..	..	..	14.3

Total	..	..	176.0
Keijo-Genzan Line	..	..	138.4
Kankyo Line			
Genzan-Yeiko section	..	..	33.9
Seishin-Kwainei section	..	..	58.1
Total	..	..	92.0
Grand total	..	..	1,092.0



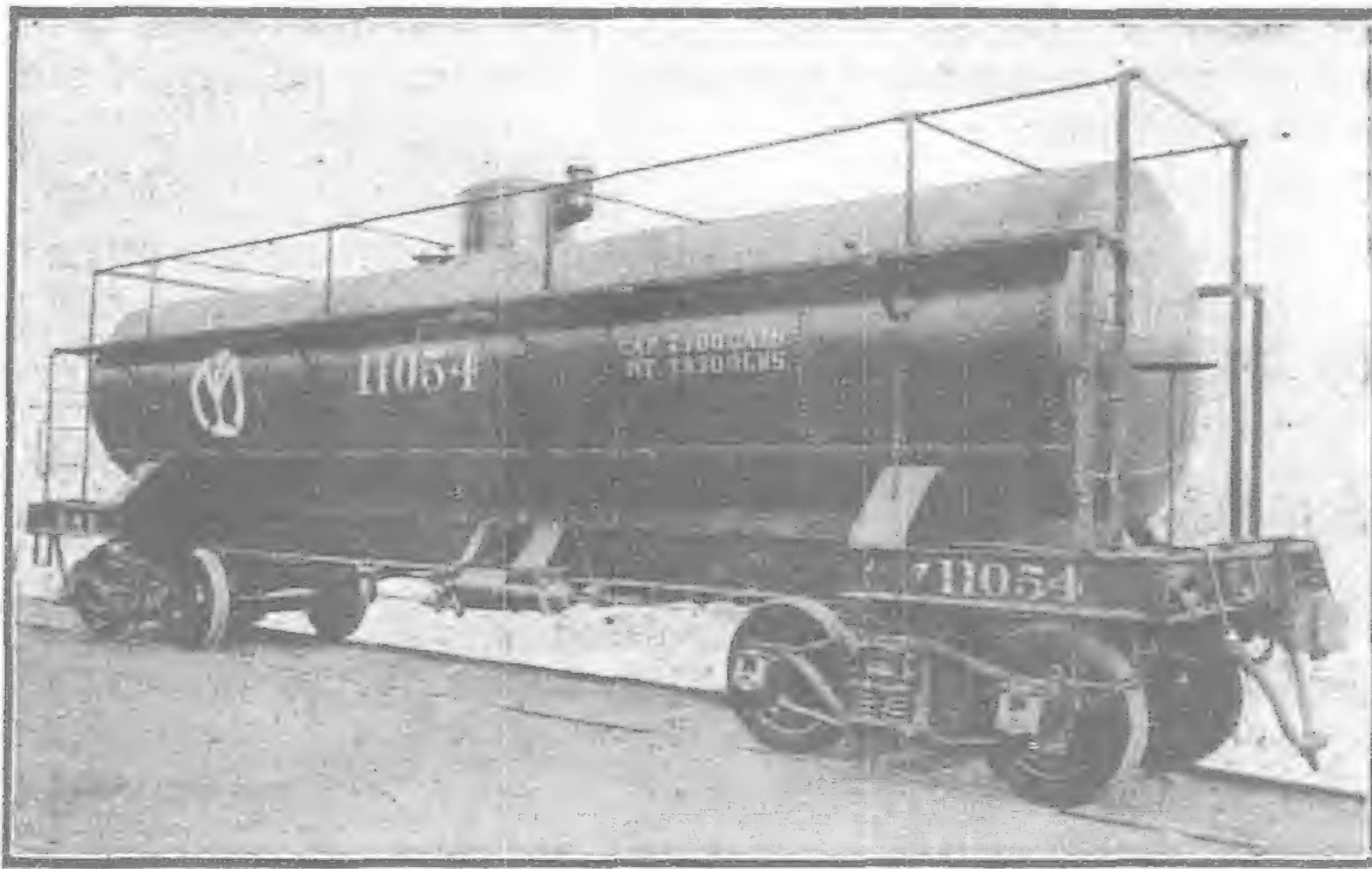
COMPARTMENT IN A SOUTH MANCHURIA RAILWAY SLEEPER

The management of these railways was made over to the South Manchuria Railway Company on July 31, 1917, in order to make closer connection with the Manchurian railways. As a result of this change two through trains, between Fusan and Mukden, per day, for every class of passengers, have been added since November 1, 1917, while the Chosen-Manchuria express has been run as heretofore. Tourists have thus been saved the inconvenience of changing cars at Antung, and the Customs inspection there has been facilitated. Necessary investigations will be made by the company to further improve the through traffic service and realize the object of the unification of railway management in Chosen and Manchuria.

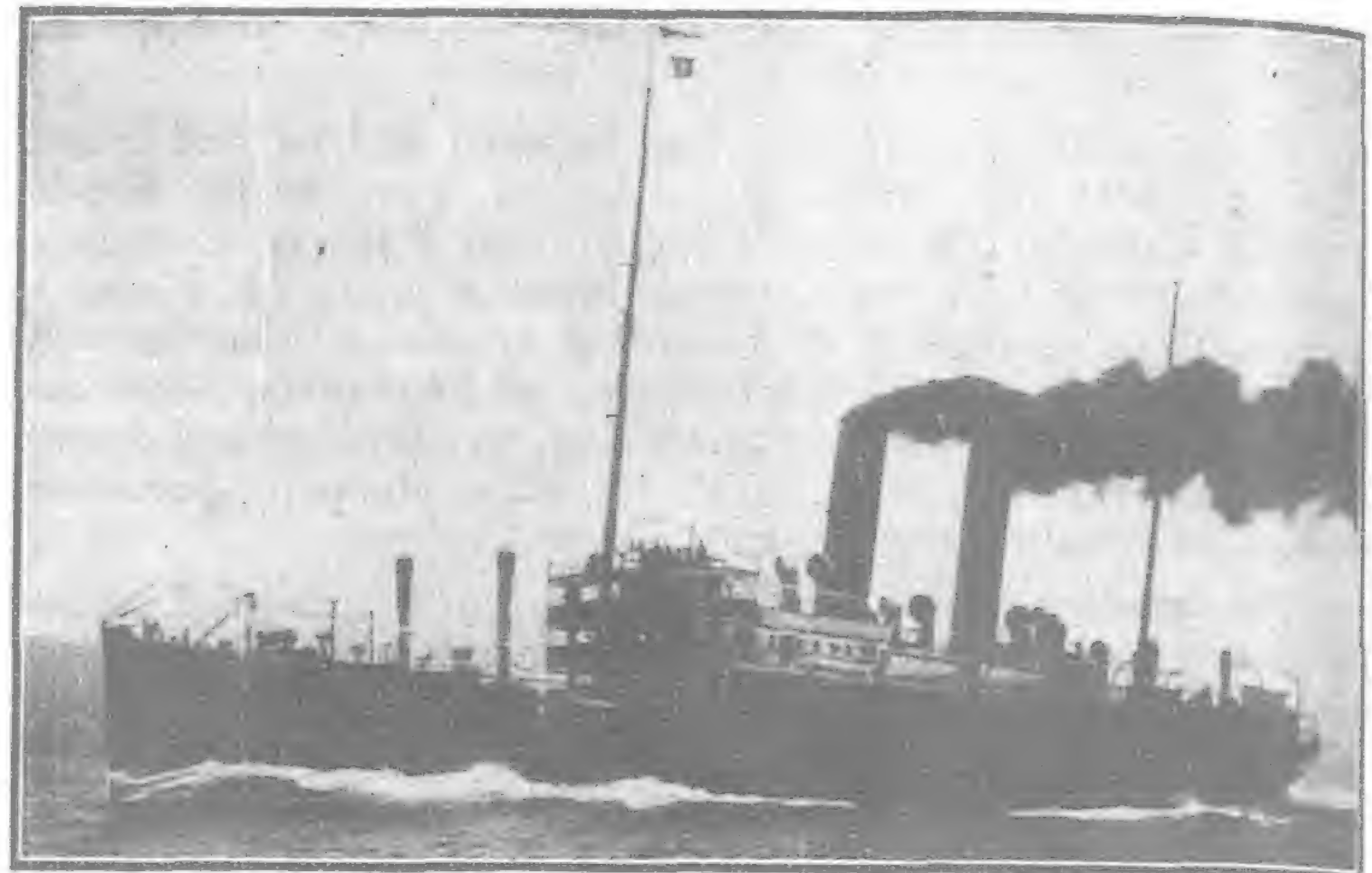
Everything possible has been done to add to the comfort of passengers and relieve the tediousness of travel, and also to give them all possible convenience. In April, 1908, dining cars were attached to day trains on the Kei-Fu and Kei-Gi lines, and a contract was made with a certain restaurant for service in them; but in 1913 the Railway Bureau took the service in the dining cars into their own hands. In the dining cars writing tables are fixed, and boards and men for Japanese chess, etc., are lent on request. Passenger conductors and waiters are in attendance on the express trains. Medicine cases are provided, too, on express trains for urgent necessity in case the stations where railway doctors are available are too far away. In the first and second class cars drinking water and motor fans are provided in summer, and steam radiators and stoves in winter. First and second class sleeping cars are also run on the Kei-Fu line, and all express trains on the Kei-Fu, Kei-Gi, and Kei-Jin lines are lighted by electricity.

Goods Traffic

The report for 1915 is the latest available. It shows that goods traffic of the railways developed gradually along with the increase in industries and the closer relation of trade between



TANK CAR ON THE SOUTH MANCHURIA RAILWAY



SOUTH MANCHURIA RAILWAY TURBINE SAKAKI MARU

Japan, Chosen, and Manchuria. There is no doubt that an increase of four per cent was made, both in quantity and receipts in goods traffic, when the result of the first fiscal year after the nationalization (1906) is compared with that of the previous year. In the next fiscal year (1907) the section for joint traffic was extended, and at the same time, the arrangements for through traffic were improved, transactions at Custom Houses were much simplified, recognized shippers were nominated at the principal stations, a system of rebate in freight was fixed upon to encourage shipping, and other new arrangements were effected, bringing about a still better result in the traffic. In the fiscal year 1906 the freight rate over the Masan branch line was reduced with the idea of encouraging shippers, and an increase in transportation resulted, notwithstanding the reaction in the economic world against financial expansion as an after effect of the war with Russia. Though no very fine results were to be obtained in the next fiscal year on account of still greater depression in the economic world, yet, in 1910, the transportation of general goods increased greatly in consequence of the more active condition in markets and the increase in industrial enterprises following upon annexation. This promising state continued in 1911.

In July, 1912, revision in freight was made and a considerable reduction effected, the car consignment principle was put into practice, and the sections for reduction in rates for long distance transportation were extended, with the result that an increase in the quantity of goods transported was experienced, especially so after putting into practice reduction in freight on goods arriving at seaports by the end of the year. A reduction in freight on cotton cloth, cotton yarn, and other principal goods for Manchuria was effected in June, 1913, and this, with activity in the transportation of rice to Japan, contributed to the brightness in traffic. Though the opening of the Japan-Manchuria through goods traffic in January, 1913, encouraged much the exportation of rice and other grains to Manchuria and made the traffic bright, the economic condition again began to sink toward the end of the fiscal year. This state of things continued even in the fiscal year 1914. Moreover war breaking out in Europe more or less affected traffic, but on the other hand it caused an increase in goods for transportation, and, with the opening of the Kei-Gen Line to traffic, helped on the fair result obtained.

As the country began gradually to emerge from the depressed economic state of the fiscal year 1915, traffic, too, took on a brighter aspect. In such goods of large consignment as coal the transportation of Heijyo coal and that of Fushun coal brought into the country was brisk; the higher price of rice and other grain toward the harvest season induced a great quantity of grain to appear for transportation. The increase in mining enterprises brought about transportation of minerals, while timber and salt were transported in greater quantities. Especially must a conspicuous increase in the Japan-Manchuria through goods traffic be recorded. The tonnage of goods transported during the fiscal year was 1,656,640 tons and the receipts reached Y.3,358,200.

The necessity for the introduction of a proper arrangement in goods transportation was now felt by reason of the greater

quantity of goods arriving for transportation, not only in Chosen itself but between Japan, Chosen, and Manchuria, as the result of economic development. Transportation in bond of goods arriving at Nandaimon, Taikyū, Heiyo, Shingishu, Chinnampo, Jinsen, Kunsan, and Mokuho was effected, and examination of these goods at Soryo was omitted. Especially since the reduction in freight on cotton cloth, cotton yarn, and other merchandise for Manchuria in June, 1913, did goods in transit conspicuously increase, and goods clerks were stationed at Antung so as to facilitate the examination and passing of goods through Antung Custom House. Moreover the arrangement for canceling transportation, returning the goods, or changing the destination upon request of the consigner or holder of the order for delivery of goods was another of the conveniences added since December, 1912. Reduction in freight for grain destined to Fusan, Soryo, Kunsan, Jinsen, Chinnampo, Mokuho, and Gensan was also made for the encouragement of grain transportation.

Through Traffic

As the Chosen trunk line had become an intimate part of the shortest route in the round-the-world communication between Europe and Asia through the completion of the bridge over the Yalu and the reconstruction of the Antung-Mukden Line in 1911, the Railway Bureau expressed wish to join the Japan-Manchuria, Japan-Russia, and the Western European through traffic, and the conference opened at Petrograd in November, 1912, accepted the proposal to include the line in the web of passenger and goods through traffic. Passenger through traffic was started in May, 1913, and that of goods in January, 1914. As regards the three great routes of communication, that is, the international passenger communication via Siberia, the circular communication via Siberia and Suez, and the round-the-world communication via Siberia and Canada, the Bureau was recognized as having taken up the question of joining in these communications at the conference held at Berlin in June, 1912, and joining was decided upon at the conference opened at Moscow in June, 1913. Though the Chosen lines thus became part of the communication system with European countries, they were not yet in agreement for through traffic with China, the country in the closest relation with them. So we took up the question of opening through traffic, first of all with the Peking-Mukden Line, at the meeting of representatives of railways concerned opened at Tokyo in March, 1913, and acted upon it in October of the same year. The second conference was opened at Tokyo in March, 1914, and it was resolved that the through traffic system be extended to the Peking-Hankow, Peking-Kalgan, Tientsin-Pukow, and Shanghai-Nanking lines, which was effected in January, 1915, while the goods through traffic with the Changchung-Kirin Line came into effect in March of the same year. Tickets for the overland tour and the circular tour were put on sale in October of the same year at principal stations on the Chosen lines and those on the Imperial Government Railways of Japan, the South Manchuria Railway, and the Chinese Government railways, as well as at the principal ports visited by liners belonging to the Nippon Yusen Kaisha (Japan Mail Steamship



TWO VIEWS OF THE PORT OF FUSAN, THE GATEWAY TO KOREAN TRAVEL

Co.), and the Nisshin Kisen Kaisha (Japan-China Steamship Co.). This was another convenience afforded tourists between Japan and China. Besides the through transportation with the Imperial Government railways of Japan and the South Manchuria lines, which had already been carried on for some years, the establishment of the inquiry office at Shiba-ku, Tokyo, also helped to introduce the Chosen lines to the public and to encourage the passenger and goods traffic. Joint traffic with different steamship companies and light railways in Chosen, too, was agreed upon and put into practice to a greater extent every succeeding year.

Passenger Traffic

In the fiscal year 1914 a heavy decrease in passenger traffic was seen by reason of the great war that broke out in Europe. Though this depressed state of traffic continued even in the fiscal year 1915, the Industrial Exhibition, opened in Keijyo in the month of September in commemoration of the establishment of the Government-General in Chosen, brought a conspicuous increase in the number of passengers, and the passenger traffic continued bright even after the closing of the exhibition, showing 5,040,471 in passengers and Y.3,961,593 in passenger receipts for the year.

Through the rise in the standard of living among the Koreans and the spread of interest in travel among them, as well as the better understanding of affairs in Chosen, increase in tourist parties—Korean, Japanese, and foreign—was witnessed and all of them were given, to the utmost extent possible, special conveniences.

Warehousing

Warehousing has been undertaken at the principal stations since July 1, 1913, as additional work of the Government railway business. Since the inauguration of this enterprise shippers and merchants have been much benefited by being able to deposit their goods and obtain advances on them. There are at present twenty-five railway warehouses, located in twenty-four stations and aggregating 2,138 tsubo in total area. The principal products deposited are grains—which occupy more than 90% of the total amount—straw ropes, straw bags, straw mats, shirtings, cotton cloth, cotton thread, dried fish, etc.

Hotel Business

Hotels were opened by the Government railways for the benefit of foreign tourists. The Fusan and Shingishu hotels occupy the second floor of station buildings at both places, and the Chosen Hotel is situated at Hasegawa-cho, Keijo. All are worked on the latest foreign plan in every respect. The last one consists of a five-storied, fire-proof building laid out partly according to Oriental taste. The grounds include an inclosure originally called "Kwankyū-dan," in which the so-called "Temple of Heaven" stood in former days. Tourists will find there ample opportunity to study Oriental taste. A branch villa of the Chosen Hotel is opened at Kongo-san during every summer season for tourists visiting the mountain.



THE YALU RIVER BRIDGE WHICH LINKS THE KOREAN AND CHOSEN RAILWAYS



A SMALL TANK CAR ON THE SOUTH MANCHURIA RAILWAY

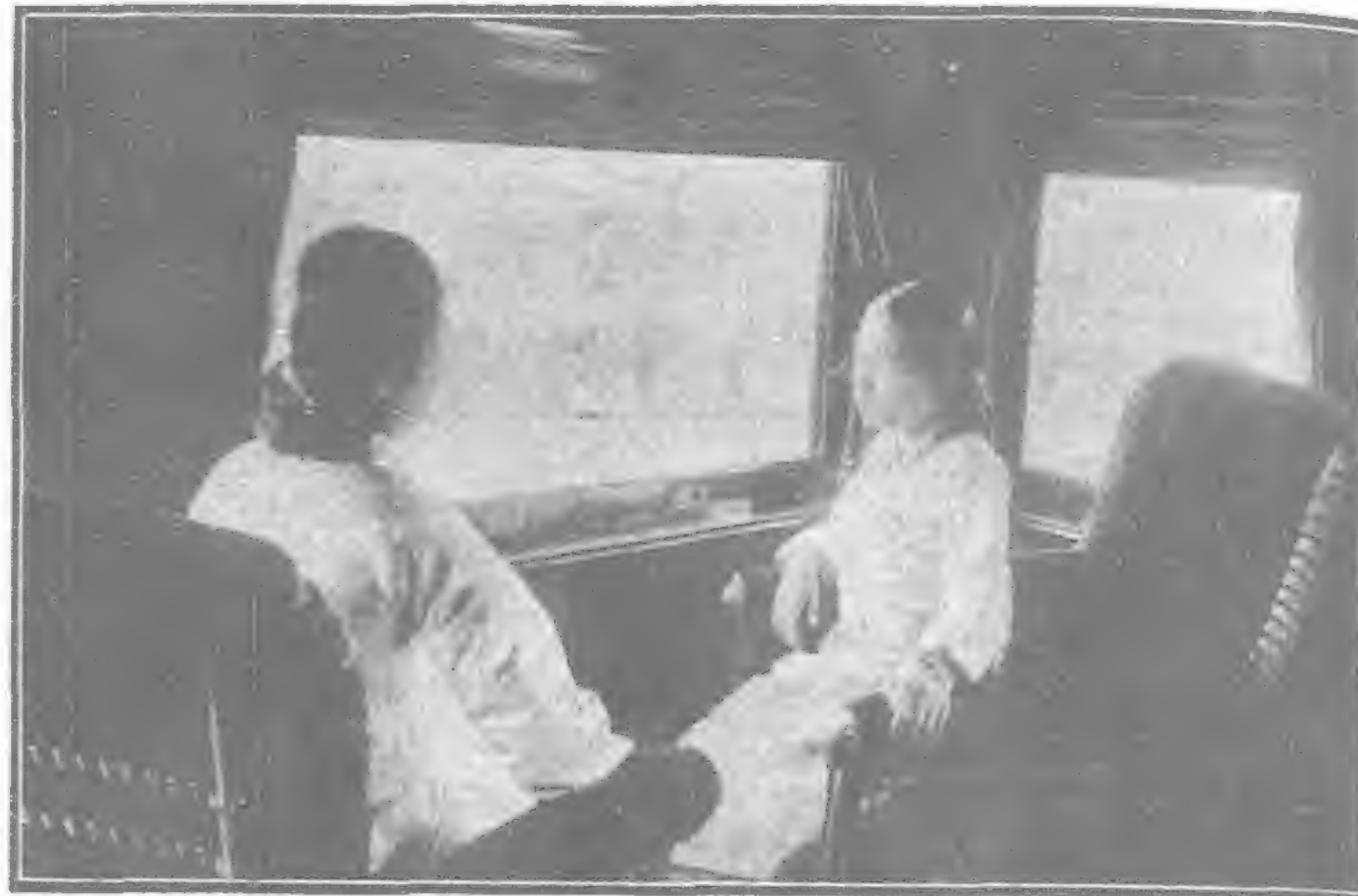
Construction Work

There are no new lines now in course of construction, though some of the earthwork and buildings on the Keijo-Genzan Line and part of the Kankyo Line already open to traffic, are as yet to be completed. The estimates of construction expenses of the remaining part of the Kankyo Line, about 280 miles from Yeiko to Yujo, is inserted in the Budget for the coming fiscal year. On the completion of the improvement work of the Keijo-Shingishu Line, that of the Keijo-Fusan Line was commenced.

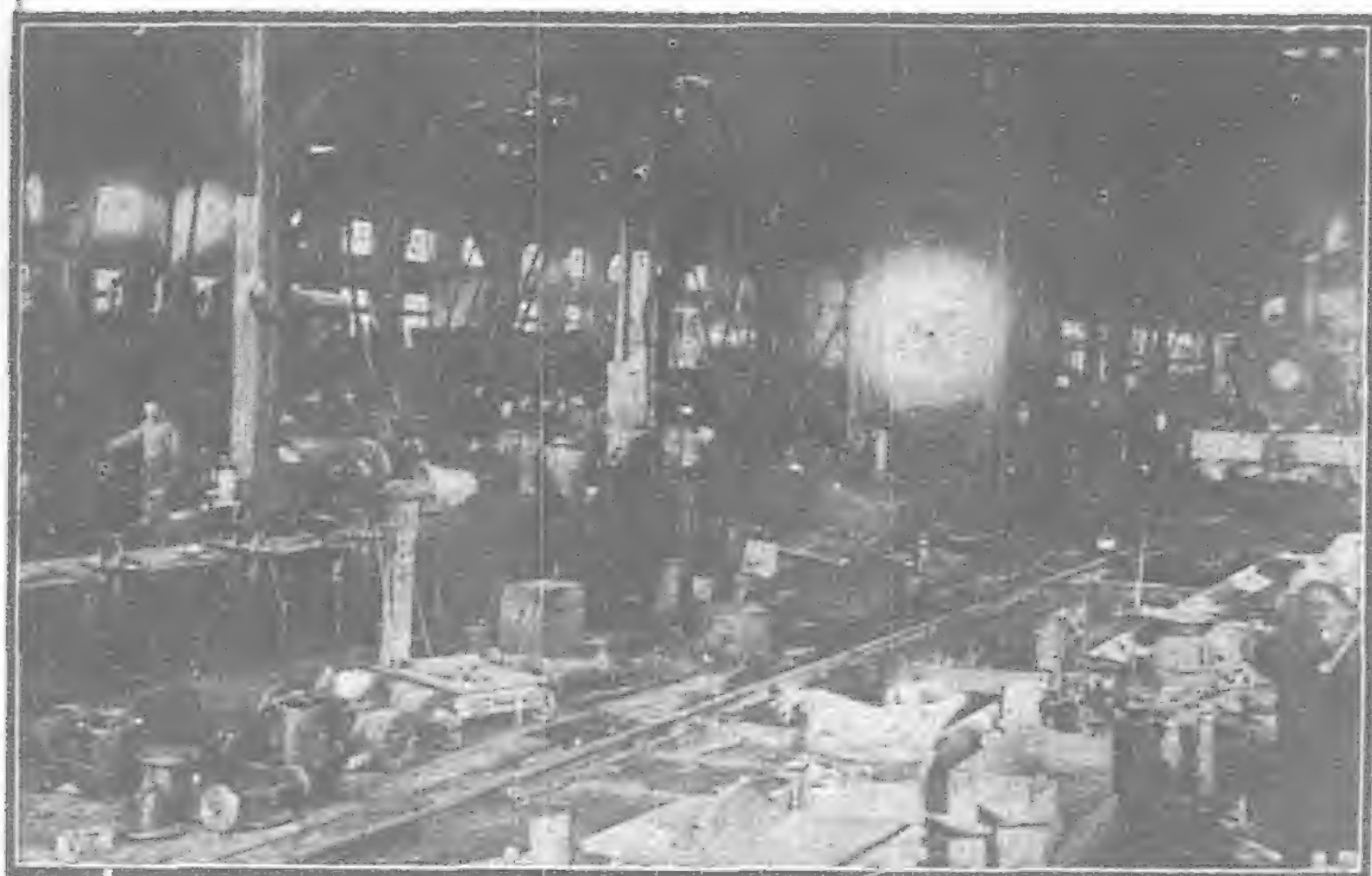
❁ Features of Old Korea and Modern Improvements ❁



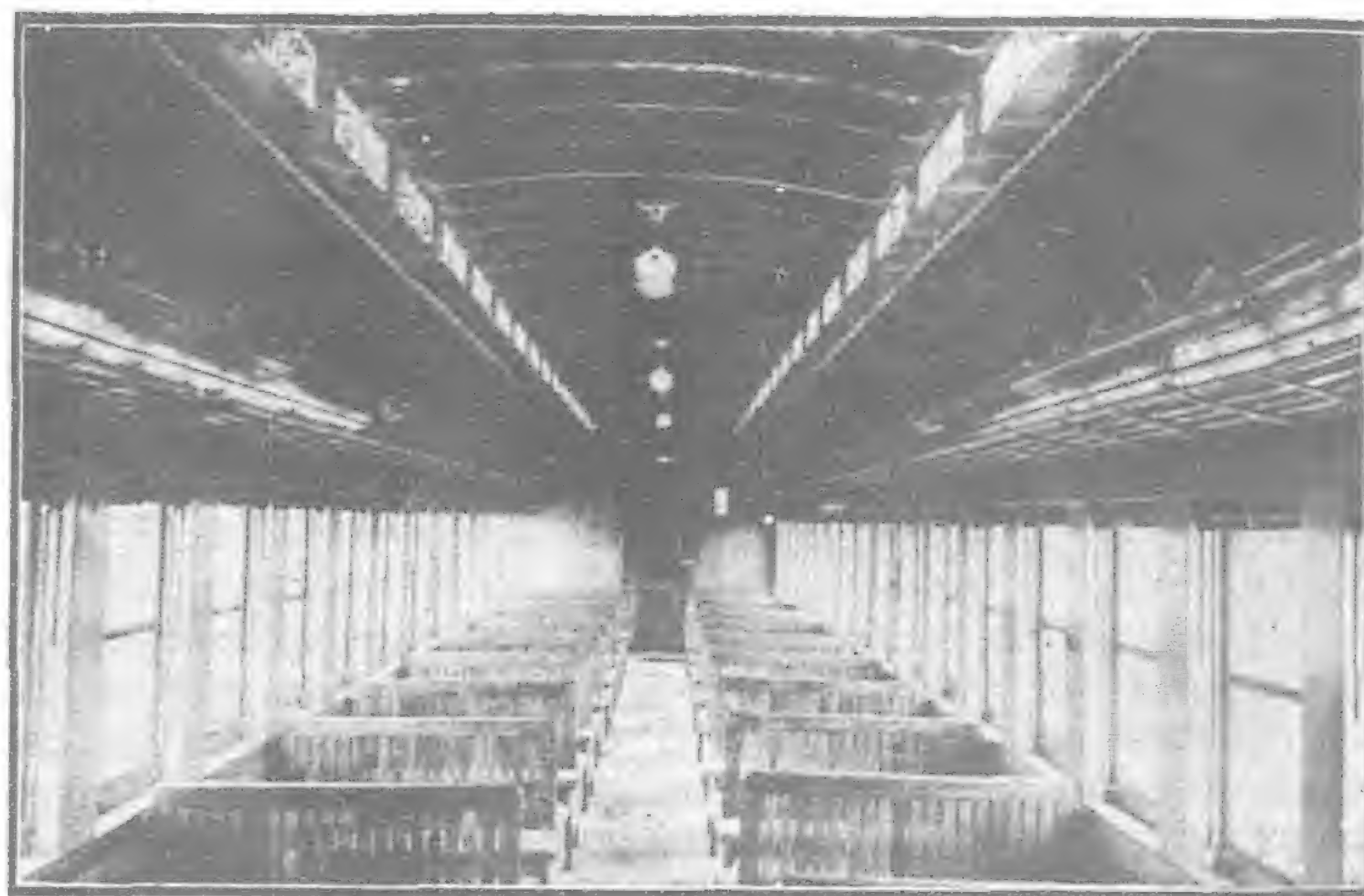
THE NATIVE KOREAN OBSERVATION CAR



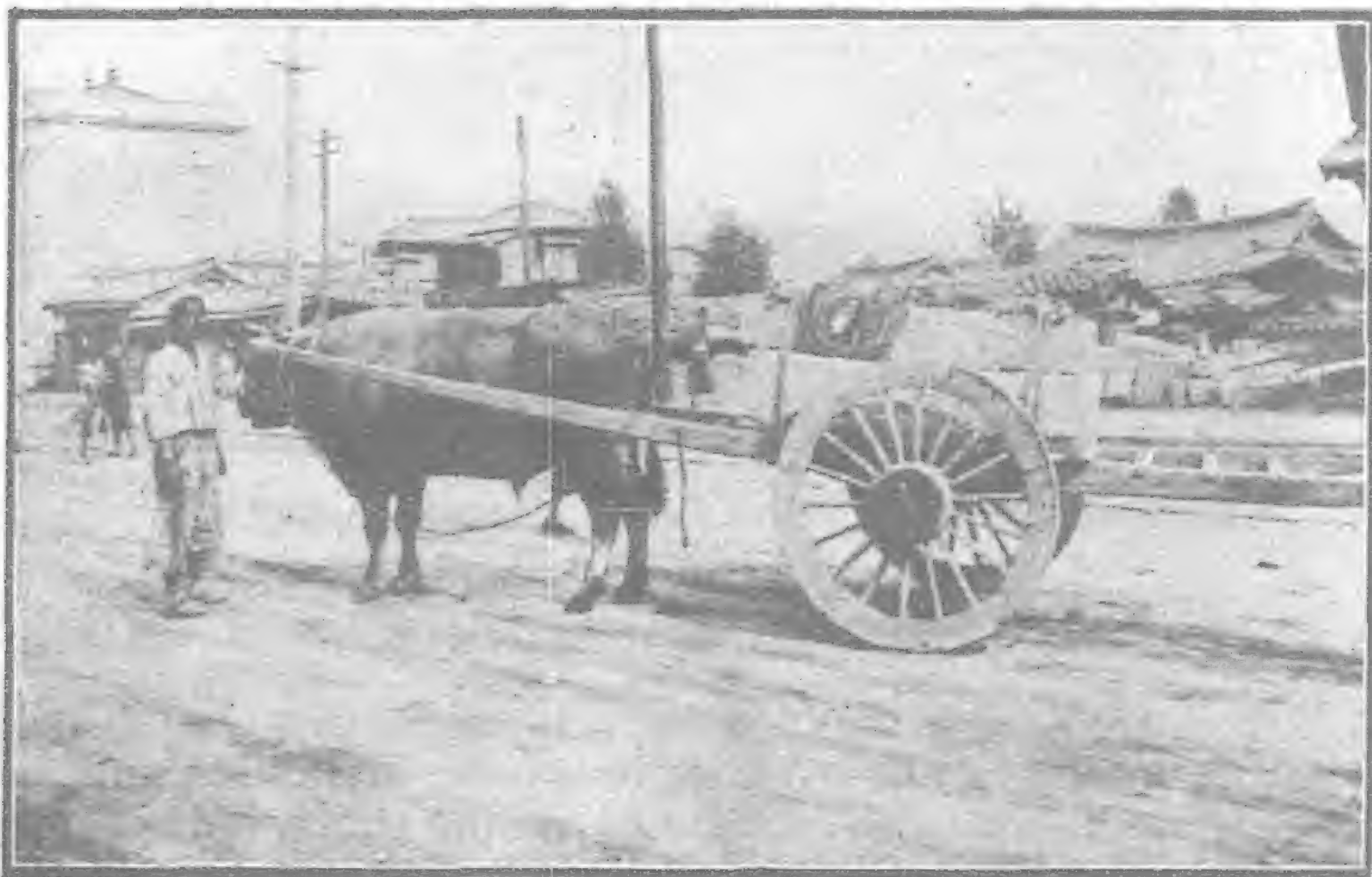
AND THE INNOVATION



RAILWAY WORKSHOPS, HYUZAN



THIRD CLASS CARRIAGE, SOUTH MANCHURIA RAILWAY



NATIVE KOREAN TRANSPORT



ITS COMPETITOR, THE EXPRESS

The reconstruction of the Taikyu-Kinsen section and the Taiden-Fuko section has been finished and the Kinsen-Taiden section is expected to be reconstructed in the fiscal year 1918. Thus in the near future the improvement work of the main line from Shingishu to Fusan will be finished, making 1 in 100 the highest grade and 20 chains the shortest radius for curves along the whole line.

Rolling Stock

With regard to locomotives, ten wheel tender superheater locomotives weighing 112 tons each are the newest in use, and others are four kinds of tender engines, and three kinds of tank engines. All passenger cars are of four wheeled bogies of corridor style with steam heater, air brake, vestibule, electric lamps, electric fans, and other arrangements, and their capacity is 104 persons for the largest car. Besides, a special car with observation compartment, berths, dining room, and other accommodation, fitted up in great luxury, is reserved for distinguished guests. The wagons are of four wheel bogies, except for some six wheel bogies of fifty tons capacity and some four wheel wagons for use at the different works. Most of them are provided with air brakes or air pipes. The capacity of the wagons at the works is ten tons, while the others carry from twenty-two to twenty-six tons.

The rolling stock at the end of the fiscal year 1915 was 169 locomotives, 337 passenger cars, and 1,604 wagons.

Light Railways and Tramways

The light railways and tramways sanctioned and constructed during the old Korean administration, were transferred to the superintendence of the Government-General of Chosen in October, 1910; the lines open to traffic at the time reached only twenty miles, while a length of fifteen miles was still unopened. Before that time there was no law applying to these lines, so one was then issued concerning light railways in Chosen and supplementary laws were issued in June, 1913. Since the fiscal year 1914 an annual subsidy of six per cent has been allowed to companies planning to lay down and work light railways according to the law, so as to assist and encourage the development of the work.

At the end of the fiscal year 1915 the open lines reached a total mileage of 64.9 miles, while those not yet opened measured 144.4 miles. The results of traffic on these lines were very good, reaching Y. 445,348 in total receipts, while the expenditure was Y. 308,317, leaving a net profit of Y. 137,031 for the fiscal year.

Private lines already in operation reached 47.6 miles, while those not yet working, covered twenty-one miles at the end of the fiscal year.

General Statistics (Fiscal Year 1915)

ITEM	NUMBER AND QUANTITY
Traffic Mileage	1,006.5 m.
LINES:	
Tracks.. .. .	1,255.42 m.
Bridges	117,599 ft.
Tunnels	58,919
Buildings	125,228 ts.
Land	23,451,805
STATIONS, ETC:	
Stations	144
Roadside Stations	17
Goods Stations	1
Signal Stations	3
Information Office	1
Locomotive Sheds	16
Maintenance Stations	26
Hotels	4
Refreshment Room	1
Warehouses (Public)	20

WORKSHOPS	3
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TRAFFIC:

Train Mileage	3,544,297 m.
Carriage Mileage	11,706,728
Wagon Mileage	19,910,502
Passengers	5,040,471
Passenger Mileage	186,998,752 m.
Goods	1,656,640
Ton Mileage	179,945,269
Passenger Receipts	3,961,593 yen
Goods Receipts	3,356,200
Traffic Receipts	7,317,793

WORKING:

Locomotive Mileage	4,427,380 m.
Converted Car Mileage	31,541,843
Coal Consumed for Running	206,900,070 k.
Oil Consumed for Running	88,500 s.

ROLLING STOCK:

Locomotives	169
Carriages	337
Wagons	1,604

ELECTRICITY:

Telegraph Stations	151
Messages	4,459,520
Lines	2,981 Ri.
Generating Stations	1
Current Generated	1,013,925 kw.

FINANCE:

Capital Invested	139,020,584 yen
Traffic Receipts	8,934,430
Traffic Expenses	7,155,866
Profit	1,778,564
Value of Purchase	4,124,628

WORKING EXPENSES:

Construction	5,126,946
Improvement	2,491,131
Extraordinary	261,253
Maintenance	2,317,783
Additional	125,103

STORES:

Profit	6,023,945
Loss	6,023,822
Balance.. .. .	123

OFFICIALS AND EMPLOYEES:

Number	9,234
Monthly Pay Roll	238,098 yen

RELIEF ASSOCIATION:

Members	8,430
Cases Relieved	2,186
Receipts { Grants from Government	40,343 yen
Contributions from Members	58,035
Interest on Deposit	15,673
Miscellaneous	
TOTAL	114,051
Disbursements	47,644

Ts.=tsubo; K.=kin; S.=sho; 1 Yen=100 Sen; 1 Sen=10 Rin; 1 Rin=10 Mo; (no currency under half sen now).

THE FAR EASTERN REVIEW

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Editorial Comment

The Menace of Germanized Siberia

The War Brought Home to China and Japan

A few months ago the war in Europe seemed very far off, no part of the world seemed safer and quieter than the East, only the faint echoes of the terrific din that has been shaking Europe to the foundations for nearly four years were heard in the Orient, while the average Oriental displayed the same interest in the conflict that he would in the rumors of a great series of battles on another planet. Now of a sudden, with the discovery that the Russian peace of Brestlitovsk is, for all German purposes, little less than an alliance placing Russia's territory and resources at Germany's disposal, China and Japan suddenly find themselves cheek by jowl with the great conflict, see German intrigue and trade advancing across Siberia arm in arm with Bolshevik madness, outrage and anarchy, and awaken to the distressing fact that they may be called upon to take a very active, very dangerous, and probably costly part in the great drama in which they have hitherto been permitted to act as "supers." Japan of course has an efficient army, has interests to protect, has a knowledge of obligations and a sense of duty and, however distasteful it may be for her to enter upon a conflict which will cost her considerably more if it develops than her war earning during the past three years, she has been preparing and is probably ready to act. But as for China—well, China still "stars" in the rôle of the fiddling Nero.

Japan's position is a difficult one. Those of her leaders who are eager to demonstrate her willingness to take a larger and more helpful part in the great war, hesitate, as the statesmen of any nation in a similar position would, to precipitate a war in Siberia which would throw a great mass of dubious Russians, who have no great love for the Germans and no thought of abetting Germany's schemes for expansion, into Germany's arms as German allies. Half of Japan advises against haste lest Russia, America, and the Entente nations deem her over-eager and suspect her of rushing into Siberia in the hope of gaining control over Manchuria and the Russian Maritime provinces; while the other half of Japan advises immediate action on the greatest possible scale lest the Allies think Japan lukewarm in the cause and inclined to shirk the duty of maintaining the peace

of the Far East, which she so often claimed as her special mission and province. Half of Japan thinks that the Allies are looking expectantly towards Japan and that the Government is not responding, while the other half thinks that the Government is exaggerating the need for mediation in Siberia as an excuse for action on the mainland and that the Allies are growing suspicious.

In this dilemma, the press opinions, which emanate from London, Paris, and Washington, are certainly no guide to the trend of official opinion abroad, but by their contradictory exposition of Japan's position, Japan's duty, and Japan's motives in a prospective campaign, certainly add to the difficulties of Japanese statesmen. The *Japan Times*, in Japan, cries in Ciceronian periods that it is too late for Japan to participate gloriously, that she has failed to leap into the breach; while the *Asahi* counsels caution and a deliberate study of the Russian situation before a rash advance is made. This, the Premier, Count Terauchi, claims is his position, and under the circumstances it is no wonder that he studies well the international diplomatic breezes, the Siberian gusts and the little political zephyrs at home before setting out to adventure upon the troubled Siberian sea. The situation is certainly discouraging to those Japanese who have no direct responsibility for seeing that the nation fulfills its obligations and have no desire to risk hard-earned prosperity on a campaign abroad, and one begins to see in the press strange suggestions for an understanding with Germany, by the terms of which both Germans and Japanese would keep clear of Asia, and the still stranger suggestions that China take the initiative, that poor bedraggled China, sapped of her strength by her everlasting internal disorders, conduct the campaign with Japan's coöperation.

In view of the delicate position in which Japan is placed, it is not difficult to understand her deliberate and careful attitude, but it is impossible to understand China's indifference and her persistence in the sham warfare of the Yangtze valley and the futile political conspiracy which has broken down all authority and has cost the leaders of all classes and parties the respect and confidence of both Chinese and foreigners, when several thousand miles of Chinese border are exposed to the Bolshevik marauders

and German agitators. When Simionov leaves Harbin with his 1,500 Buriat Mongols to face the gathering hordes of Maximalists and armed German prisoners beyond the Chinese frontier, General Chang Tso-lin takes two or three divisions out of Manchuria, away from the scene of action, and advances upon Peking to persuade the President by a display of rusty steel that some of his political rivals should vacate their offices in favor of a few of his political friends. While Tuchun Yang, Governor of Chinese Turkestan, is excitedly reporting fighting at Andijan, the presence of German agents among the inflammable Turki Moslems of Kashgaria, and the threatening attitude of the Bolsheviki all along China's remote northwestern border, the valiant Sons of Han under arms on the Yangtze are expending very costly and very scarce ammunition in target practice upon British, American, and Japanese steamers.

Whatever the prophets and critics of the Japanese and foreign press may have to say of Japan's present or future policy, there is every reason to believe that the Allied Governments are in close touch with the Japanese Government, and that Japan's part in Manchuria and Siberia will be determined by a general understanding. There is no reason to believe, however, that the Allies have any knowledge of what China is going to do, and it is pretty certain that the representatives of the various Governments in Peking are hoping against hope that China will shake herself free from her political entanglements, organize her big armies into some sort of a defense force, and undertake her clearly defined duty of guarding and protecting her own frontiers. By the exercise of a little diplomacy China could have at her disposal several hundred thousand Mongols, precisely the same material that Simionov has organized into the heroic little force which has been holding the Bolsheviki in check on the Siberian railway just beyond the Manchurian border. By the exercise of a little more diplomacy and the display of a little interest, the vigorous and warlike Moslem population of the northwest, among whom German agents are undoubtedly working industriously, could be converted into loyal defenders; while if even a part of the Peiyang army were sent into Manchuria and were given to understand that they were on serious business, there would be no Bolshevik menace in that quarter. It is not that the great war is at all likely to manifest itself in the East in trench warfare, or in big artillery duels, or even in organized campaigns of regular troops. Germany is much too busy in Europe to spare the number of men required to carry systematic modern war into the East. But Germany evidently intends to use European Russia and from European Russia she can carry on a campaign of inspired anarchy which will be carried just as far into China as the Chinese permit and no farther.

A month and more ago it appeared that the Chinese Government had realized the importance of preparing against the Bolshevik violation of her borders. The Germans began to advertise their ambitions in the East, they talked of the Berlin to Tokyo alliance; the German war prisoners in Siberia were observed to be at large, and not only at large but holding railway offices in some instances, training Bolsheviki in others, and carrying arms themselves in still other instances. It was apparent that China was called upon to do something, especially when the moderates about Harbin were preparing to support Simionov and his Buriat Mongols; so China turned from the internal political gamble long enough to issue a mandate, and then went about the fascinating game in the Yangtze again with renewed zest. Four divisions were ordered to the Heilungkiang-Siberia border. Simultaneously with this order General Chang Tso-lin began removing troops from Manchuria in his advance upon Peking, and commandeered much rolling stock to do it. So much for the mandate. A little later the assembled war lords at Hankow—Tsao Kun, Wang Tsan-yuan, and others—announced that there would be a prompt settlement with the South so that they could move their troops into Manchuria to meet the Russo-German menace. A few days later they were advancing upon Yochow, more intent than ever upon the local campaign.

No situation since the fall of the Manchus has brought out more clearly the utter selfishness and irresponsibility of China's political and military leaders than this one. They are callous to the shame and disgrace of leaving Simionov with his Mongols to guard their Manchurian frontier, of leaving Chen Yi to hold the

royalty of Mongolia by bargaining and coaxing, of leaving Tuchun Yang with nothing but his wits to combat German intrigue in the Turki tinder box, where a single spark struck might light a conflagration that would range millions of Chinese Moslems on the German side, while they, the decadent militarists and the schemers from the Treaty Ports, play political checkers over the Yangtze valley and the Chibli plain with several hundred thousand stalwart, well-fed soldiers. Yet if Japan, who has given China the strongest possible hint that the initiative is here and that Japan waits upon her leisure, is forced to act alone and is compelled by the nature of Asiatic geography to land troops on Chinese soil, what wails and lamentations will emanate from the camps of the true patriots!

The Terms of the Wireless Loan

It may be remembered that in November last a contract, involving a loan, was signed by the Chinese Minister of the Navy, Admiral Liu Kuang-hsing, and a Mr. S. Larsen, a Dane suspected of representing German interests, for the erection of a wireless station in North China. The Entente Legations in Peking had good enough reason to believe that this arrangement was a German attempt to get control of a medium for direct communication with the Orient to enter a prompt and vigorous protest, and the Chinese Government had its own suspicions of the deal since the enterprising Admiral had gone through with it without consulting his colleagues, so the contract was canceled and the momentary excitement which it aroused in foreign circles died down. Not so with the Chinese, however. No sooner had the stories of Larsen's disappointment, and the various accounts of the compensation paid him, lost their interest than a fresh rumor of a Japanese wireless contract, either of a similar nature to the Danish arrangement or an actual transfer of the Danish interests to the Japanese, began to circulate, and they have persisted in circulating, gathering fresh flourishes from time to time, even down to the present.

It is assumed by the Chinese press that the Mitsui Company arranged immediately after the cancellation of the Danish agreement to take up the contract where the Danes perforce dropped it, and it is further assumed that the hypothetical Japanese contractors have arranged to take over from the Larsen company the hypothetical wireless supplies purchased in America if the United States Government will permit their export. The fact that it was recently reported in Peking that President Feng had attempted to put an end to this gossip, by announcing that all wireless deals were postponed until the end of the war, has not damped the ardor of the Chinese journalistic sleuths, who have developed through the experiences of the last few years a very fine nose for loan and concession scandals. The foreign communities, feeling sure that the Danish deal, with whatever German inspiration it may have had, is finally done with, are not taking nearly so keen an interest as the Chinese in a possible Japanese contract; but in view of the fact that references to a transfer of the contract to the Japanese are constantly cropping up in the Chinese press, the following summary of the terms of the agreements and letters signed by Admiral Liu and Mr. Larsen may be of interest.

Summary of the Contract

The contract, which is for the installation of a wireless telegraph station capable of establishing direct connexion with other stations in America and Europe, was signed on November 16, 1917, by the Minister of the Navy and the Danish firm of S. Larsen and Company, described as Consulting and Contracting Engineers of Shanghai.

It provides (Art. 2) that a station shall be erected at a locality to be approved by the Naval authorities with sufficient power to connect with European and American stations; (Art. 3) the Contractors to provide the estimated amount of £536,267 to purchase or lease the site, erect the equipment, houses, etc., and to be responsible for all transactions involved in the installation.

The capital mentioned (Art. 4) represents the cost of the station and is to be paid in equal yearly installments in the course of thirty years, plus eight per cent interest on any unpaid portion, payment to begin at the end of the year when the station is first in operation.

These payments are guaranteed by the Contractors (Art. 5) to be earned by the station after all running costs are paid. The Contractors take responsibility for the payments even should the station not pay its way, in return for which the Government gives them the right to control the station and manage its affairs for the term of thirty years.

The Government (Art. 6) is to receive a royalty of ten per cent of the gross takings, whether such takings cover expenses or not, the royalty to be paid at the end of each year.

Officials appointed by the Government may be employed at the station (Art. 7) to supervise accounts, and students may be employed at the expense of the Government to learn to work the instruments.

The Government is to allow the station to work (Art. 8) with all or any station outside of China, including ships at sea or in port, which will insure the largest and most profitable traffic, but the Contractors have the right to prevent any traffic of a commercial nature with any stations in China, except for military purposes in accordance with the instructions of military authorities, though in case of war the military will have full direction of the working of the station.

The working of the station may be taken over by the Government (Art. 9) at any time within the thirty years' period by paying installments due plus eight per cent interest to the date of payment, the Contractors in such event to furnish a full inventory of equipment.

Unless these payments are made (Art. 10), the Government shall have no right to take over the working of the station, and should they attempt to do so the Contractors are to enjoy full powers as proprietors of the station.

The Contractors may (Art. 11) transfer their rights to another party with the permission of the Government.

If the Government takes the station over (Art. 12), all employees are to be paid by the Government, but unless that is done the Contractors reserve the power to appoint and pay all employees out of earnings.

At the end of thirty years (Art. 13) the Government has the right to take over the station without compensation to the Contractors, on six months' notice being given. Should this not be done the Contractors are to be paid five per cent of the gross takings for a period of five years.

The efficiency of the station may be improved (Art. 14) by the Contractors, they to be responsible for such costs and interest within the original thirty years.

Machinery and materials (Art. 15) are to be allowed to enter the country free of duty and likin, though the Contractors are (Art. 16) to use all suitable materials purchasable in China at reasonable prices. (Signed) November 16, Larsen and Liu Kwang-hsing.

A Supplementary Loan Agreement

As after the signature of the above the Government desired to take over the station on completion, a Supplementary Agreement was made providing (Art. 1) that the Contractors are to procure for the Government a loan of £536,267, the amount to be placed to the credit of the Contractors in a European Bank, such funds to be employed in the payment of expenses connected with the erection of the station.

The whole capital is to be paid to the Contractors (Art. 2) within thirty years, in equal installments, plus eight per cent interest per annum on the amount due the Contractors at any time, though (Art. 3) the first installment shall not be due for ten years after the completion of the station and the demonstration that it is capable of service with similar stations in Western America and Europe. Interest payments are to begin (Art. 4) at the end of the year of the completion of the erection of the station.

Article 5 provides that, as under this Supplementary Agreement the Government takes over all rights to work the station and acquire the income, Article 5 of the preliminary contract is canceled.

Should the working of the station by the Government conflict with existing agreements with Cable companies the Contractors (Art. 6) shall take over the control on account of the Government and operate it privately with other wireless stations not interfering with the business of the Cable Companies, payments to the Contractors to be withheld until such arrangements can be made with such wireless companies.

The Contractors are obligated to prove (Art. 7), within six months of the signing of the contract, to the Chinese Legation in Washington or Copenhagen that they are able to supply the necessary machinery and that the amount stated in Article 1 has been placed to their credit at a bank in Europe. Should they be unable to do this the Contracts become null and void and the Contractors shall forfeit a sum of \$15,000 to be deposited by them on the date of the signing of this contract.

(Signed) November 16, 1917, by Liu Kwang-hsing and S. Larsen.

Two Supplementary Letters

A Supplementary Letter dated November 16, addressed to the Ministry of the Navy and signed by S. Larsen sets out that as the Ministry of the Navy has doubts as to the possibility of the station earning sufficient to pay amortization and interest the Contractors are willing to take over the working of the station under the supervision of the Government and pay the interest and amortization in accordance with the contract for a concession first signed. But in such case the Contractors insist (1) that the Government shall give a full year's notice so that arrangements can be made properly to manage the station, (2) that the Government shall be responsible for all payments of capital and interest, and (3) that the Contractors shall have the right, while working the station, to charge for the forwarding of both private and official messages.

This letter was countersigned by Liu Kwang-hsing and attached to the agreement.

A second Supplementary Letter dated November 16, and jointly signed by the parties and attached to the Agreement, pointed out that as the Contractors had become aware that the Government was a party to agreements with the Great Northern and Eastern Extension Cable Companies which were in force till 1930, they, the Contractors shall comply with the terms of Article 6 of the Supplementary Agreement only till 1931, after the beginning of which year they shall have the right to connect with all wireless stations in the world.

Significance of the Mongol Loan

It has recently been reported in the Chinese press of Peking that Mr. Chen Yi, Chinese Resident Commissioner at the court of the Hutukhtu, the lama-king of the Mongols, had negotiated a loan of a million dollars with the Bank of China for Outer Mongolia. Whether or not this deal has been consummated, it is certainly apparent from the attention which both the Chinese and the Japanese press have been paying to Mongolian affairs recently that those Chinese, who are not too deeply involved in the futile political struggle which centers in the Yangtze valley, are awake to the opportunity which the Bolshevik disorder in Siberia, added to the collapse of the Russian Imperial house, offers for the play of Chinese diplomacy in Outer Mongolia. Unhappily the number of those interested is probably small, for politics is the great distraction.

Mongolia has had a more or less attenuated connection with China for over twenty centuries. Sometimes the Chinese overran and subjugated Mongolia and sometimes, perhaps more often,

the peoples of the northern steppes and mountains—Turks, Huns, Tunguzic tribes, and Mongols—overran and subdued parts or all of China. Relations have never been cordial, but under the Manchus political relations were at least clearly defined and the obligations of a tributary and dependent people were faithfully carried out by the Mongol princes. The Mongols have few wants and no longer any political ambitions. Their differences with the Chinese grew out of a mutual racial antagonism, and while the two peoples entertained a cordial contempt for each other in seasons of peace and prosperity, they understood each other and worked well in concert. This was particularly true when the Manchus, a people of similar origin and somewhat similar stock, controlled Chinese diplomacy beyond the Great Wall.

When, in the years that followed the Russo-Japanese War, the Russians and the Japanese, out of their reciprocal suspicion, decided to create for themselves distinct spheres of influence and adhere to them as a guarantee of the peace, Russia, in her allotted sphere of Outer Mongolia, set about intriguing and undermining Chinese authority by playing upon the Mongol racial antipathy to the Chinese in the first place, and upon the everlasting hunger of the priesthood for temporal power in the second place. Mongolia is very much under the dark and stultifying influence of lamaistic Buddhism. The Russians picked an ambitious lama, the "Living Buddha" of Urga, and inspired him with the idea that he might be a Khan like Ghenghis and Temur as well as a gentle incarnation of the "Perfect One." This scheming culminated in the revolt of the Mongols, in the Mongol appeal to Petrograd in 1911, and in the strange triple agreement between Russia, Mongolia, and China in 1915, which established the nominal autonomy of Mongolia and granted to the Russians, what was denied the Chinese, the right to colonize Mongolia and develop industries in China's own dependency.

With the fall of the Russian imperial house and the rise of the moderates, China received the first hint that a Russian democracy would be inclined to deal more fairly and straightforwardly with her neighbors than the old power-hungry and land-hungry autocracy. It was announced that the appointment of "Ministers of Colonization" to Mongolia had been canceled, and this was generally taken to mean that Russia meant to abandon her preferential claims to the right of colonization on territory wrung from China. Now, with the ascendancy of the Bolsheviks, the duty devolves upon China, as a belligerent and as the suzerain power in Mongolia, to see that the Bolshevik taint does not infect anything south of the Siberian-Mongol border. Russia is not in a position to object to the entrance of Chinese soldiery into Outer Mongolia; China has a right to assume that a rational Russian democracy, accepting the creed of the Allies, will never press for unjust rights wrung from a weaker power by a predatory imperial government; and it is also to be presumed that the Allies would encourage and support any movement of Chinese troops into any part of Chinese territory if their movements were contrary to a pro-German Bolshevik movement. There can be no doubt, moreover, that in this season of distress the lazy and stupid Hutukhtu, who has probably wearied of the tinsel honors conferred on him by the Russians while they proceeded to run his country, would much prefer an alliance now with the conservative Chinese to a diplomatic set-to with the mad radicals who show no inclination to deal kindly with either priests or kings.

Certainly an excellent opportunity is afforded to bring Mongolia back into the fold, and it is very likely that Chen Yi has taken the first step in this direction by providing a small, but always welcome, loan for the Hutukhtu. If any sort of a settlement could be reached between the numerous war lords in Central China, who are too busy working in the interest of their great divinity ME to give any thought to Mongolia, or to China for that matter, it is very possible that Peking could be prompted to take a really keen delight in the prospect of regaining the full fealty of Outer Mongolia and of joining with the Mongols to keep the Siberian border intact; but if the wonderful opportunity to do something splendid and heroic in Manchuria does not appeal to the infatuated political gamblers, it seems scarcely likely that they can be brought to take a real interest in Mongolia. Unless a real adjustment is reached between the Chinese factions

—for which we have some reason to hope at this moment—the opportunity in Mongolia will probably be ignored, like all the great chances which have come to China in the past three years, so that her illiterate generals and her unscrupulous schemers may have all the resources of the nation at their disposal in their game of political tiddle-dy-winks.

Chinese Politics

During the past month a number of different forces have been at work with the single purpose of ending internal strife in China, and there seems to be a bare possibility that in one way or another either a temporary settlement or a temporary Northern victory may put an end to warfare in the Yangtze valley and make a large movement of troops towards the Manchurian and Mongolian borders possible. All factions of all parties have been talking of it, but it is exceedingly difficult to gauge the value of official announcements and expressions of opinion in China. The Bolshevik problem certainly overshadows every local political issue in the minds of foreign residents, and the Chinese are being told from many quarters that their clear duty is to end squabbling and face the Siberian menace sanely, so it is likely that if some one with prestige and power enough comes forward with Premier Lloyd George's slogan "Down with controversy—close up the ranks," there will be a pretty general response.

It is not to be expected that a movement of this sort will put an end to conspiracy and political subterfuge, for this winter of political chaos has been the golden era of the small fry who keep poking and blowing upon the controversial fire every time it threatens to die down, and who resent bitterly any attempt to bring the leaders together and effect a permanent understanding.

The peace talk began in the latter part of February. The Chambers of Commerce supported the first suggestion of peace with natural enthusiasm and there was talk of a conference between leaders. But the small fry rushed frantically from camp to camp bearing tales and aggravating old antagonisms; and with the federation of the three provinces of Manchuria under General Chang Tso-lin and the advance of his troops into Chihli, the Northern leaders turned a deaf ear to the peacemakers and registered a fresh determination to bring the fighting to a decisive finish by carrying the war into the Southern provinces again. This resolution put an abrupt end to the peace plans being discussed by Generals Tsao Kun and Wang Tsan-yuan at Hankow, and all concerned belted on their trappings for a reopening of serious hostilities. Although peace suggestions were made a week or more later by the foreign Chambers of Commerce of Shanghai, and although Baron Hayashi, Japanese Minister, who recently returned from Tokyo, is said to have brought with him ideas for a program of mediation, there has been no further tendency to discuss a settlement; the Northern armies have moved steadily upon the South, converting doubtful neutrals and defeating open enemies; and it would appear that if peace is to come in the near future it will come through the collapse of the Southern defense, since no one is willing to make concessions in the interest of national defense on the Siberian border.

The advance of General Chang Tso-lin's forces into the metropolitan province, the seizure of the newly purchased arms supplied by a Japanese concern to the Central Government, and the arrogance of General Chang's first communications, caused a great deal of consternation in Peking. A rumor spread throughout the country that the Manchurian forces, in emulation of Chang Hsun, were about to attempt another Manchu restoration. President Feng expressed a desire to resign, Li Shun at Nanking threatened to attack Ni Shih-chung in conjunction with the rebellious Feng Yu-hsiang, there was no one in Peking who would accept the premiership, and the whole nation seemed about to drop pretense of maintaining a government and of keeping order and lapse into frank anarchy.

Early in March, however, the Northern leaders came to an understanding, when Chang Tso-lin announced his intention of supporting Tsao Kun and Chang Huai-chih in their movement against the South and swore his allegiance to Peking, and the campaign opened with fresh energy. At the same time it was reported from Canton that the Kuomintang leaders had failed to effect a federation of the Southern provinces owing to the opposition of the militarists Lu Jung-ting and Tang Chi-yao. Dr. Wu Ting-fang and Tang Shao-yi were said to have abandoned the project in despair and the latter left Canton for Shanghai, whence he proceeded to Japan to talk peace and present the arguments of the Southern leaders for consideration.

Meanwhile Peking made some show of preparing for a campaign on the Siberian border after the settlement of internal affairs. The War Participation Bureau, of which Premier Tuan is chief, had a formal opening during the first week in March and a staff of military experts commenced a series of conferences for mapping out a course of action. Towards the middle of the month Peking showed more assurance by granting Chang Tso-lin the right to recruit thirty thousand troops to be trained in Manchuria while his own thirty thousand were on their way south to support the advancing Tuchuns. On the 15th the decisive step of pardoning the numerous monarchists of the Yuan Shih-kai movement and of the Chang Hsun movement was taken, and on the 16th Yochow fell into the hands of a northern army led by Chang Chin-yao and the Southerners retreated through Hunan. Chang Huai-chih, Military Governor of Shantung and leader of one of the expeditionary forces, penetrated to the capital of the southern province of Kiangsi and converted Chen Kuang-yuan, a neutral, to the Northern cause while his men advanced upon Hunan across country, threatening to outflank the retreating Southerners and catch them in Changsha.

It then began to be suggested that Tuan Chi-jui, the acknowledged leader of the northern military party, would once more accept the Premiership, and that President Feng would turn over to him the actual control of the Government's policy. At the same time Liang Shih-yi, Yuan Shih-kai's famous financial agent, set out for Peking from Hongkong as a pardoned monarchist, and his movements gave birth to a whole new crop of political hopes and guesses. Each faction laid claim to a political alliance with Liang and his very able and influential Chiaotung following. Even the Kuomintang stock went up for a little while, because it was believed that Liang had come to an understanding with Li Hsun and his Yangtze Valley federation of neutral moderates, and because the Kuomintang was laboring under the delusion that Li's opposition to Peking was founded upon his championship of their interests. As a matter of fact it would appear that the returning exile had very little to promise any one; but in his interviews with numerous "tai piao" he insisted that he was not going to meddle in factional politics but was keenly interested in seeing a real central government built up and something done towards the reorganization of the finances. It is dangerous to speculate, but it seems exceedingly likely that Liang will lend his advice and the weight of his presence to the present Peking Government, and that Tuan Chi-jui, reappointed premier, is once more to become the leader of an united and rejuvenated Peiyang party.

Now while all this is going on, as little understood by the citizens of the representative government of China as it is by foreigners in or out of the country, while the fog of conspiracy and the steam of combat rises between the Chinese people and their rulers, making contact and sympathy between them impossible, and breeding a more profound apathy and indifference among the people to national interests and international affairs, it is very wholesome to remind those, who would like to sympathize with China but who are losing hope, of the splendid fashion in which the Chinese in America and in the British colonies have shown their appreciation of the just and considerate governments under which they prosper. There has been a great deal written about the response which the Chinese abroad, in Hongkong, Singapore, Honolulu, San Francisco, and New York, have made to appeals for loans, for war charity funds, for aeroplane funds, and for actual service when called upon. The response which the Chinese abroad make to good government is one of the most conspicuous arguments against a sweeping

condemnation of the Chinese masses in China, who are not sufficiently educated in the theory of government to check the malpractice of their own irresponsible official classes. The Chinese merchant abroad and the Chinese coolie in France are better indices of what China is going to be some day than either her Tuchuns in gold braid and plumed hats, or her radicals in frock coats and silk hats.

The Coolie's Place

One might say of the Chinese, as it is sometimes said of the Bible, that you can prove anything by him, and all foreigners who are residents in China for any length of time devote much of their attention and thought to the exposition of their theories about the Chinese people and their future. There are bitter pessimists and there are optimists who are almost pugnacious in their championship of Chinese virtues. To divide them roughly, the optimists are those who, either by the nature of their business or the character of the community in which they live, come in contact with the people;



From L'illustration
"BUY LIBERTY BONDS." A NEW YORK POSTER THAT BROUGHT RESULTS. WHEREVER THE CHINESE GETS A SQUARE DEAL HE SHOWS HIS APPRECIATION OF IT.

while the pessimists are those who for other reasons, have to deal with the official and military classes or with the upstart, semi-educated politicians of this particular generation. In the seats of government and the centers of conspiracy in China it is impossible to escape the pessimistic infection, for a veritable miasma of hypocrisy, doubt, and despair pervades the atmosphere, but in the fields, the markets, and the workshops the outsider breathes a different air and cultivates an abiding faith in the worth and wholesomeness of the Chinese common people.

These generalizations are well supported by the contrast between the impressions which Occidental observers of political conditions in China are gathering from a study of the trend of political tendencies in this country, and those which other Occidentals, both in China and out of it are gathering from association with the thousands of Chinese volunteer laborers who are now behind the fighting lines in France or are on their way to France. The coolies engender nothing but faith. Among those who know very little of the Chinese, but who are given to coining trite comments upon their character, one frequently hears that the "Chinese works very hard for himself but very little for any one else," and that "the Chinaman is all right if he is kept in his place." There is so much published evidence, now that there are more than sixty thousand Chinese laborers in France, that while working for the British and other governments as well as for himself the "Chinaman" is one of the best and most faithful laborers which the world produces, that it would be futile to quote it. And the recruiting and training of Chinese in the Chinese Labor Corps has also demonstrated very clearly that the Chinese is not only "all right," but a remarkably decent and efficient person "in his place," when his place is one in which impartial justice, decent living conditions, sufficient food, ample clothing, fair pay, and consideration for the humanity that is in him, take the place of the filth, hunger, maltreatment, and misgovernment with which his native rulers and masters provide him.

The Chinese laborer abroad has not only built up a reputation for himself which will help to counteract the impression which the official classes in China are making upon the Occident, but he has justified the courage, faith, and enterprise of the individuals in China who proposed the use of Chinese labor in France, who organized the system which is described in an article in this number, and who, by virtue of their insight into the Chinese variety of human nature, have prepared the numerous relays of laborers who have gone abroad for their duties and have made it possible for them to cover themselves and their nation with credit.

The suggestion of using Chinese labor in France came first from Lieutenant-Colonel Robertson, Military Attaché to the British Legation, who has sufficient knowledge of the people and experience in dealing with them in their own language to have faith in them. For many months after the idea was transmitted to London it lay dormant, or rather it made very slow progress through the military council halls, and only emerged as a concrete possibility when the problem of keeping industries and manufactures up to date without withdrawing men from the army became very acute. The Director-General of Military Railways wanted it, and Sir Eric Geddes brought it into being with characteristic energy. The first proposal was to use fifteen thousand men, nine thousand of whom were to be at Sir Eric Geddes' disposal, as an experimental force. Once the transport of Chinese labor had been determined upon it took four days and no more to evolve the system which has worked so smoothly and which has now placed more than five times the number of laborers in France which was originally called for.

The men in China who have done the recruiting, the cleansing, the drilling, and the shipping—all the really delicate work, requiring at every moment of the day infinite tact and sympathy—deserve much credit, both from China and Europe, for it seems inevitable now that both must profit greatly from the fruition of Colonel Robertson's inspiration. The organizer and the present director of the Dépôt and staff at Waihaiwei is Mr. T. J. Bourne, an "old China hand," who has had twenty-eight years' experience as an engineer; and in the working of the allotment system, which has proved to be one of the most attractive features to the Chinese, he has had valuable assistance from Mr. H. Theodore Roberts, a chartered accountant. In the actual administration of the Dépôt, Mr. G. S. Moss, of the British Consular Service, has assumed and discharged the burden of the work, which requires a knowledge of the Chinese language, both written and spoken.

That the management of the Dépôt, carried out under the eyes of Chinese representatives and at first in the face of no little reluctance, where there was not actual opposition either official or popular, has completely allayed the suspicions of the Chinese authorities and has won their approval and support, is much to the credit of the staff. All the native prejudices are at once

aroused and directed against any movement to take numbers of Chinese out of their native habitat and place them under foreign control. It is no small tribute to the Dépôt staff that these prejudices, after so short a time, are now practically nonexistent except where they are revived by studious German prevarication. Apart from doing a great service to the Allies, this staff is serving China by sending abroad many thousands of young men who will return schooled, competent, self-reliant; and will be the apostles of new standards of living and working; and this China is beginning to appreciate. This appreciation, now voiced in many quarters, will ultimately mean better Anglo-Chinese understanding.

Customs Employees' Grievances

The revision of the Chinese Maritime Customs tariffs gave us the theme for an article published in the January number of the FAR EASTERN REVIEW in which the very unfair conditions of pay, living, and service of the "Outdoor" branch of the foreign staff of the Customs were depicted. The foreign staff of the Customs is the only Occidental institution in the Orient which pays one group of its employees so badly and shows them so little consideration that they are forced into a distinct social caste.

The article in the January number, which voiced the grievances of the "Outdoor" men in some detail, elicited much correspondence and much comment from employees of both the "Indoor" and the "Outdoor" branches of the service, much information confirming and enlarging upon that already published, and practically no adverse comment except remarks upon errors which were obviously typographical, of which, unfortunately, there were quite a number. Some of the points made by correspondents are new and others are worth reemphasizing. The general verdict, for instance, is that the Inspectorate General in Peking is so thoroughly out of touch with the Outdoor Staff and so ill-informed upon conditions that, for the men in the service, it is unapproachable. In the regular order of things, all complaints, petitions, and suggestions are supposed to go to Peking through the various Commissioners of the various ports. The petitions and complaints which are presented through this medium, invariably result in a direct reaction from the outraged Commissioner, conditions being aggravated instead of improved. On the other hand, if complaints are forwarded to the Inspectorate directly, that institution refers the complaints or petitions back to the Commissioners concerned, who are the more aggrieved for having been ignored, and proceed to make things as uncomfortable as possible for the petitioners. The members of the Indoor staff who have attempted to throw light on the subject have made no attempt in any instance to defend the system, because they know it is bad and sympathize with the men in their grievances, but they invariably attempt to apologize for the indifference and apparent injustice of the Inspectorate by advancing the plea of ignorance on behalf of the Peking offices.

It has been the custom in the past for the Inspectorate, when defending itself, to characterize its employees as an unruly lot and to voice the opinion that the Outdoor branch needed a weeding. In this connection it has been pointed out that many of the Post Office employees who are doing very satisfactory, very faithful, and very comfortable and well paid work, are ex-members of the Outdoor Staff of the Customs who, after struggling along in that thankless service for some years, weeded themselves out. It is also to be remarked that the postal service has done very well with this material since its separation from the Customs, a divorce which resulted in a noticeable boom in postal affairs generally.

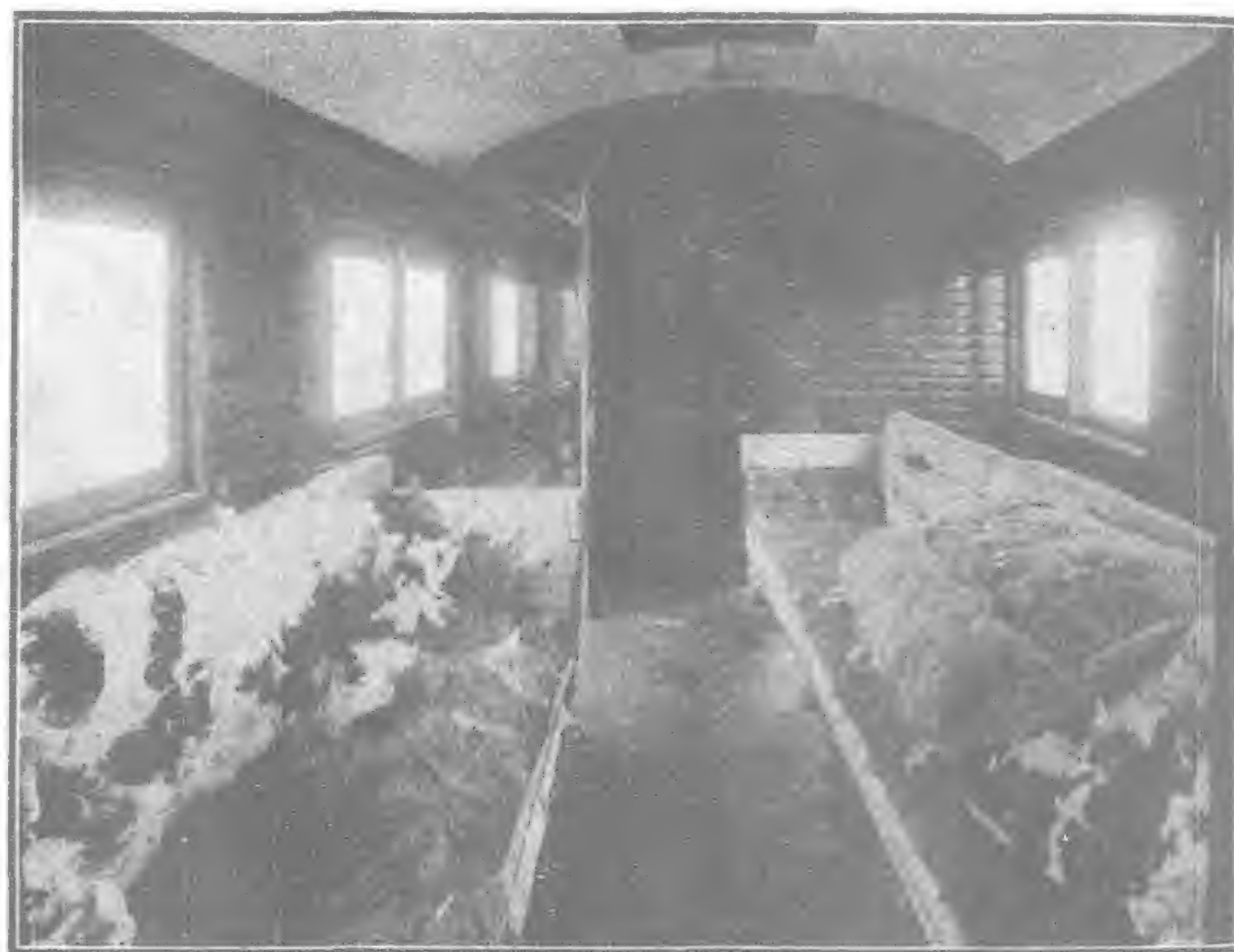
Correction.—In the March issue of the FAR EASTERN REVIEW it was stated in a footnote that the article contributed by Mr. Herbert Chatley on "Floods and Flood Prevention" was an address delivered before the Shanghai Engineering Society. The address was delivered before the Engineering Society of China.

China's Railways and the Soldier Pest

In China the civil communities and the commercial enterprises upon which their existence depends, exist in spite of the constituted "guardians of law and order" and not by virtue of any protection, or favor, or service which these same "guardians" afford them. The Chinese army, for instance, is the cruelest incubus which the Chinese people have to carry on their exceedingly painful forward march. Its uselessness as a national force is even outdone by its deliberate cruelty and destructiveness. The country road over which a Chinese army passes on a mission for some gambling Chinese politician is inevitably marked by dismantled inns, charred villages, and funeral processions. The railway car that has been occupied by Chinese soldiers on a single journey is good for nothing but junk. The Chinese Minister of Communications and the Chinese Minister of War sit in the same Cabinet in Peking, exchange pleasantries, drink tea together, and conspire together in the great political game, but it has never occurred to the one to complain to the other that the Chinese army is making railway administration a trial and a tribulation for every officer connected with the Government railways, from the car boys to the managing directors, and that it is also making travel so wholly uncomfortable and distasteful to the traveling public, both Chinese and foreign, that no one who can afford the

time he built a new bit of track, however, a new troop train ran onto it and refused to move, and it was finally announced that the line was closed. Commerce and travel therefore ceased while the fat general's retainers proceeded to tear the furnishings and woodwork out of the trains they were occupying to cook their food.

The Tientsin-Pukow line, originally well-built, well-furnished, and still as well-managed as conditions will permit, has become notorious for the inconveniences that arise from the constant use of the line by soldiers. It is not only that the commanders are constantly moving troops and delaying traffic; the greatest annoyance is the constant use of any and every train by the common riff-raff of the so-called army who camp in the dining cars and in the first and second class coaches, monopolize all comforts without even paying their fare, and make comfort and sanitation for all other travelers wholly impossible by their filthy and destructive habits. The old center of annoyance used to be Hsuehowfu, in northern Kiangsu province, which was for several years the headquarters of the notorious Chang Hsun and his "pig-tailed army." The nuisance has now spread, however, to both Tsinanfu and Pengpu, the headquarters of Chang Huai-chih and Ni Shih-chung respectively, and conditions are so bad that the



TWO VIEWS OF THE INTERIOR OF A FIRST CLASS RAILWAY CAR, WHICH WAS OCCUPIED AND RUINED BY SOLDIERS WHO TRAVELED FROM PEKING TO HANKOW

time to travel short distances on foot or on horseback or who can go on long journeys by roundabout routes by steamer will trust his health and his temper to the keeping of the Government railways.

China has many competent men in the Government service who are both able and eager to run her railways and run them well. But these discouraged enthusiasts have no authority over the bemedaled braggart, who sets out on a campaign of mingled bluff and destruction by seizing all the first class carriages on a line and filling them full of verminous, malicious, uncontrolled coolies, and ends by occupying all available tracks and sidings on a busy main line with his cargo of incorporate devilry and refusing to move for three or four weeks while he sends some hundreds of telegrams in all directions explaining why he is not fighting, under what peculiar conditions he will consider fighting, and finally announcing—what every one knew all along—that he will not attempt to fight at all. The director of one important line, who had the Military Governor of a province to deal with under precisely these circumstances, tried to keep his line open by building new sidings and cut-offs around the stationary troop trains of the bellicose official who was supposed to be at war. Every

line is avoided by every one who can travel by another route. The efforts made by the railway management and servants to keep up appearances and service under these conditions are truly pathetic. A train runs along on time and has a good chance of making scheduled connections. It reaches Hsuehowfu and on the platform there appears a beplumed and gilded general who announces that he wishes to have a conversation with some other general or politician of standing on board the train. Everything is held up accordingly. The talkative general and his friend ensconce themselves in a first class compartment and absorb tea and political gossip for two or three hours while a ragged squad of coolie soldiers, under a coolie officer, guard the engine and the station master's office and see that no attempt is made to move the train. About the time then that a start is made fifty or a hundred bandoliered ruffians of the local army, who are moved to ride somewhere on an excursion, clamber into the dining car, sprawl over the tables, stack their rifles in the aisles, and proceed to spit upon every square inch of floor and wall space that is within range.

The Peking-Mukden line has usually been fairly free from these visitations, but now the ex-bandit Chang Tso-lin, present

Governor of Fengtien, has set the fashion of commandeering cars and monopolizing traffic on this line also, and there is no reason to believe that the precedent once established will be abandoned.

One of China's greatest problems is the reduction in number and the control of its armed coolie hordes, recruited to give an air of realism to the absurd burlesque warfare carried on to the great cost of all classes of the Chinese people by self-seeking militarists and politicians. Instead of attempting to solve this problem, however, it is being aggravated by the daily enlistment of fresh forces from the outlaw classes of every community in the maritime provinces. Three railways are monopolized by the utterly worthless and malicious forces of ambitious tin-pot officials, and the upper Yangtze is closed to steamers, both native and foreign, because the coolie marksmen of all forces insist upon using everything that steams past as a target in their rifle practice.

These conditions are not only indices of the breakdown of authority and control within the country, but insofar as they affect foreign residents in China and foreign trade, they also

indicate a loss of a sense of responsibility on the part of all the political leaders and an indifference to consequences. Every Chinese knows from experience that an aggravation of these conditions, which result in the loss of foreign trade, of the property of foreign traders, and of foreign life in some cases, will eventually result in foreign intervention, possibly in retaliation at the cost of much national prestige and of national funds. During the Revolution of 1911 the rights of outsiders and the sanctity of their persons were scrupulously borne in mind by the warring factions. For rights and persons no consideration whatever is now shown on either side, simply because no individual military or political leader is responsible to the nominal government in Peking and because he does not care what afflictions or indignities are visited upon the unhappy persons who are adorned with executive titles, if not with executive powers, so long as he attains his own petty and selfish objective. These are the conditions which put the severest strain upon the optimism of China's well-wishers.

The Orient's Finances in 1917

At the yearly meeting of the Hongkong and Shanghai Banking Corporation, held in Hongkong, February 23, Chairman of the Court of Directors S. H. Dodwell read a report which has been reprinted in most of the journals on the China Coast to the extent of about six and a half columns. The length of this document and the misleading implication in the headlines that it was simply a corporation report probably drove many busy people who were skimming the pages for light and easily digested mental pabulum back to the presidential mandates in despair. Those who had the courage and persistence to read through the opening paragraphs on the bank's own business undoubtedly read to the end and then congratulated themselves upon having discovered a perfectly human and a remarkably interesting review for 1917 of everything vital in finance, trade, and politics in the Orient, masquerading in the dismal guise of a bank report.

Mr. Dodwell's statement is a very simple and concise reference work in a few columns upon half a dozen topics which are of intense interest to every one with an eye upon the East. He begins with the bank, drifts from that, after exhausting it, into the international money market and then goes into exchange, making that bewildering subject clearer and more interesting in two paragraphs than the average banker would in a book. Equally short and pointed reviews follow upon Chinese trade, shipping generally, Japan's foreign trade, China's declaration of war and important political events, finance, the Maritime Customs and the Salt Gabelle, China's financial status and prospects, currency reform, war charities, the war generally, and America's participation taken in conjunction with Russia's defection. Its length precludes the quotation of the report in full, most of the figures quoted are obtainable elsewhere, and the bank's returns for the year have already been reproduced, but there are a few illuminating paragraphs of general interest which are worth quoting. The following explanation of the fluctuation of silver, for instance, will bring the lay mind as near to comprehension of this baffling subject as anything can:

"It was not to be expected that silver should escape the effect of the general rise in prices arising from the inflation of credit, based on the enormous increase in the fiduciary note issues of all the belligerent nations and to the urgent and insistent demand for the raw materials of silver-using countries, especially India. During the year the silver quotation has ranged from 35 11-16d in March to 55d in September—a variation of 19 5-16d per ounce. From 36d per ounce in January the price rose until in September it culminated in a quotation of 55d. At that price the silver content of the rupee in India, of the dollar in the Straits Settlements, and of the yen in Japan was in excess of the parity of the gold exchange standard of these several countries. It would have paid to melt the

coins and sell them as bullion. It became necessary for these countries to take legislative action to protect their respective currencies, and, accordingly, the export of silver, under license, has been prohibited in India, Japan, the Straits, and Siam, as well as in Great Britain and the United States. The immediate danger has been averted.

"The fall in the price of silver was even more rapid and sensational than the rise. From September 25, when the highest point was reached, the price fell 6d in four days. Wide fluctuations followed in the succeeding month, a rise of 3d on October 30, making the largest rise recorded in any one day since 1893. The general trend, however, has been towards a lower level of price. The year closed with the quotation at 43½d.

"The amount of silver imported into China during 1917 was 23,000,000-oz; while 54,750,000-oz. were exported, resulting in a reduction of the stock in the country by 31,750,000-oz. However, provided there is no considerable export of silver from China in the near future, present indications do not point to large imports of the metal being necessary. The China exchanges, although generally at a discreet interval, have, *volens volens*, followed these erratic and sudden fluctuations in silver."

Of Japan's prosperity Mr. Dodwell says:

"The foreign trade of Japan for 1917 exceeded all previous records and shows an excess of exports over imports of Y.589,923,000, or Y.203,713,000 more than at the corresponding period of the previous year. The total figures are: Exports, Y.1,683,780,000; and imports, Y.1,093,857,000—being increases of 42 per cent and 37 per cent, respectively, while the combined figures show an expansion of 40 per cent, or Y.798 millions. The great preponderance of exports over imports and the free gold market in the United States during the first nine months of the year resulted in a phenomenal increase in the amount of specie at the disposal of the nation, which now totals Y.1,120 million, or Y.411 million greater than a year ago, about half being held at home and half abroad. The prosperous condition of the country has enabled Japan to repay a portion of her foreign debt, make substantial loans to the Allies, and to borrow on advantageous terms for the development and improvement of her railways and other works of public utility."

China's financial status is sketched as follows:

"From a financial point of view the past year was even a more prosperous one for China than its predecessor. The total Maritime Customs collection for 1917 was Haikwan Tls. 38,177,000, equivalent, at the average rate of exchange of 4/3 13-16d, to £8,241,857, as against a collection for the previous year of Haikwan Tls. 37,764,000, equivalent, at the average rate of exchange of 3/3 13-16d, to £6,264,496. Considering the handicap imposed upon China trade by adverse war conditions

and a dearth of tonnage, the increase in the actual collection is no less remarkable than that of the sterling equivalent due to the extraordinarily high rate of exchange. Thanks to this latter factor, the Maritime Customs revenue during the past year has not only met the service of the various loans, which are a first charge upon it, but has paid the whole of the Boxer Indemnity service and, for the last six months of the year, the service of the reorganization loan, which, by a special clause of the loan agreement, is charged upon surplus customs revenues. After the discharge of all these liabilities, there still remained a surplus of Tls. 10,000,000 of which Tls. 2,000,000 were released to the Chinese Government in August last, and the balance has since been paid into salt revenue account in reimbursement of contributions previously made towards payment of the Boxer Indemnity.

"The net salt revenue collection paid into the group banks during the year 1917 amounted to \$70,627,249, from which, after discharging all liabilities and maintaining a fixed reserve of \$10,000,000, an amount of no less than \$68,613,370 (including contributions received from the Maritime Customs) was released to the free use of the Chinese Government. It is, however, to be observed that, of the salt revenue collected during the past year, about \$8,000,000 was appropriated by certain provinces for their own needs in disregard of the authority either of the salt revenue administration or of the Central Government—a fact which should be set against any too sanguine inferences to be derived from the above figures."

Of China's prospects Mr. Dodwell writes optimistically. He says:

"We are ardent believers in the future of China, with her industrious people and great natural resources, and I am fully persuaded that these are destined to play a great part in the economic adjustment of the world after the war; but the case of Russia shows to what lengths political theorists may be led, and it is earnestly to be hoped that Chinese politicians may be warned by this example to sink their differences in favor of the wider aims which the interests of their own country and of the world at large alike demand from them."

China's Dues Again

A little more than a month ago the Commission for the Revision of the Chinese Import Customs Tariff, an international body, agreed to the appointment of a sub-committee, or rather a sub-commission, for the preparation of a provisional tariff schedule, the Japanese delegation having obtained authority from home after some delay to discuss this subject. During the past month this sub-commission has held several sessions, delegates representing seven Treaty Powers participating; the Chinese have submitted their suggestion for the provisional schedule,—a very modest suggestion,—the representatives of six Powers have agreed to the Chinese terms, readily and reasonably in acknowledgment of the modesty of the Chinese suggestion, and the Japanese are still considering and discussing the terms. This records the progress made since the subject was reviewed in the March number of the FAR EASTERN REVIEW.

The discussion of the permanent schedule of the revised tariff turns upon the basis to be taken for estimating the values of imports upon which China is to levy her five per cent *ad valorem* duty. This matter is still on the knees of the diplomats in Peking. The Chinese would take the values of 1917 as a basis, the British delegation is said to have suggested that the values recorded during the three years preceding the European War, plus ten per cent, be taken as the basis, while the Japanese press reports that the Japanese delegation would use the same figures,

adding only five per cent. The Chinese arguments for using the values of 1917 as a basis are so strong that if the question were one of granting China abstract justice, of giving her her real dues, the Powers would not only agree, but would add a percentage to make up for underpayments in the past. Unfortunately abstract justice has nothing to do with it. It is a question of conceding something to China, who has no power to do more than ask, and then of adapting these concessions to Japanese requirements, as they are shaped by the officials in Tokyo who are subject to the perennial inquisition of the Japanese Cotton Spinner's Association and other organizations of manufacturers.

The provisional schedule, which is in the hands of the sub-commission sitting in Shanghai, has nothing to do with dates, but deals with percentages, simply adding a certain percentage to the tariff schedule drawn up in 1901-2. The purpose of this provisional tariff, for which a precedent has been established, is to give the Chinese some benefit of the higher values at once. To obtain unanimous agreement and avoid bargaining, the Chinese delegation suggested that forty per cent be added to the tariffs on cotton, piece goods, steel products, and metals generally, and that twenty-five per cent be added to the tariffs on sundries. The schedule which it was hoped would at once be adopted on this basis would only be in force until the permanent schedule was drawn up—less than a year probably—yet, although the representatives of six Powers have agreed to it readily enough, the Japanese delegates, with their insistent manufacturers' associations to think of, are still reluctant to agree. By way of illustrating what the Chinese have asked for, it may be of interest to quote a few figures on iron bars, which constitute one of the most important items, both in bulk and value, in the metal imports. The specific tariff on iron bars has been, since 1901, Tls. 0.14 per picul. This being a hypothetical five per cent *ad valorem*, the fixed valuation upon iron bars is Tls. 2.80 per picul. The following are the actual values of iron bars for the past seven years.

	Haikwan Taels	
1911		2.89
1912	" "	2.90
1913	" "	3.07
1914	" "	2.80
1915	" "	4.01
1916	" "	5.74
1917	" "	6.32

According to the Chinese Iron Merchants' Association, the present market valuation of iron bars is Tls. 9.00 per picul. Subtracting twelve per cent, as arranged by treaty, the market value which would be accepted by the Customs is Tls. 7.92 per picul. It will be seen from these figures that, with the exception of the 1914 valuation, there being an abnormally low import with abnormally low values in that year, the values even during the three years preceding the war were considerably higher than the fixed valuation upon which duty is collected. China is guaranteed five per cent *ad valorem* by treaty. In 1911, according to the figures given above, her specific duty brought her in about 4.8 per cent effective *ad valorem*, in 1912 about 4.8 per cent, in 1913 less than 4.6 per cent, in 1914 five per cent, in 1915 about 3.7 per cent, in 1916 about 2.7 per cent, in 1917 about 2.3 per cent, and on present imports with a rising market value she is getting something more than 1.7 per cent. She asks for a forty per cent increase on this, which would bring it up to 2.4 per cent for the few months that the provisional tariff would be effective, or less than half of the five per cent *ad valorem* stipulated by treaty. We have taken these iron figures at random, but with the exception of a few articles listed under sundries, one could run the whole gamut of China's imports, and could produce equally convincing figures. During this war of uncertain duration, with a rising market on practically all imports, the Chinese suggestion of an increase of forty per cent on some imports and of twenty-five per cent on others seems very modest indeed, and it seems absurdly unjust to delay the imposition of the additional duties by permitting the members of one delegation to quibble and bargain over the temporary increase.



EXCAVATING FOR SETTLEMENT BASIN, ZAMBOANGA PIPE LINE

Zamboanga Pipe Line, Mindanao

The Zamboanga Water Works System in the Philippine Islands, which has recently been completed, is pronounced by experts to be the best for its size in the Philippines, and it is of interest to note the many difficulties that have been overcome and the excellent results obtained in its construction. This new water works system is especially gratifying to

the residents of Zamboanga on account of previous difficulties in securing ample supplies of water at all times.

The intake for the water is some ten kilometers from the city in the gorge of the Tumaga River, well above all human habitation, and is 206.9 feet above mean low tide. From the intake the water flows through a

large concrete settling basin, which is specially constructed to remove all debris and sediment that gets through the screen at the intake. The water is carried from the settling basin through 10,181 feet of reinforced concrete pressure pipe and tunnels to the reservoir.

There are three tunnels, aggregating 2,657 feet in length, five feet high and four feet wide. For the boring of these tunnels Igorot miners were imported from Benguet province and are said to have done splendid work. The high pressure pipe consists of 300 of 36" square section, 1,450 feet 36" x 36" rectangular section, and 5,774 feet circular section concrete pipe reinforced with Hy-Rib. When the water was first turned into this pump a number of small leaks appeared, due to the enormous pressure, but the waterproofing material in the concrete soon closed these, and at the present time the pipe is thoroughly tight. It is interesting to note that the average head on the concrete pipe is 12 feet, and the greatest head is 56 feet, while the least stress in reinforcing steel is 5,000 pounds, and the greatest stress is 10,000 pounds.

The reservoir is situated on the Santa Maria Heights, six kilometers from the department capital. The bottom of the reservoir is 159 feet, and the top of the water in the reservoir is 170 feet above mean low tide. This reservoir has a capacity of 600,000 gallons of water, and is built entirely of reinforced concrete. The iron pipe line bringing the water to the city is 16 inches in diameter where it leaves the reservoir, but is gradually reduced



EXCAVATION ALONG LINE OF CANAL, FOR ZAMBOANGA PIPE LINE



INTAKE TO ZAMBOANGA PIPE LINE BEFORE HEADGATES WERE CONSTRUCTED



SQUARE SECTION OF ZAMBOANGA PIPE LINE—HY-RIB USED IN SIDES, TOP AND BOTTOM

to 10 inches when it reaches the city.

In the detailed construction of the pipe, the Hy-Rib was first curved to exact radius by means of a machine known as the Hy-Rib Bender. The sections were taken to a central assembling place where the inside of the Hy-Rib was plastered, as shown in the accompanying illustration. After this had thoroughly set, the sections were rolled into place alongside the trench, where the necessary forms were ready to receive them; and then lowered, being suspended by wire so as to give the required thickness at the bottom of the pipe. Concrete was poured on the sides between the Hy-Rib and the forms up to about half the height of the pipe line, and from there on the concrete was applied with a trowel. It will be seen how this method eliminated the necessity for inside form work.

At the time of construction an inspection of over 2,000 feet of this pipe line failed to disclose a single crack in the concrete. Trus-Con Waterproofing Paste was later employed to thoroughly waterproof the pipe.

It is believed this system will be the cheapest in the Philippine Islands to maintain. The water is brought from the intake to the consumer entirely by gravity, and the cost of superintendence and up-keep per annum will be very low. A watchman at the settling basin and another at the reservoir, connected by telephone, are all that are required, and the superintendent in addition to his other duties, attends to the collection of water tolls, etc.

The system itself is much larger than the requirements of the city will demand for many years to come. It is estimated that about one third of the actual cost represents the preliminary work incident to the installation of a hydro-electric plant. The entire work is on a much larger scale than necessary for the water system, in order to bring down a sufficient volume to run the turbines of the hydro-electric. The plans for this plant will shortly be completed and the materials ordered in the near future.

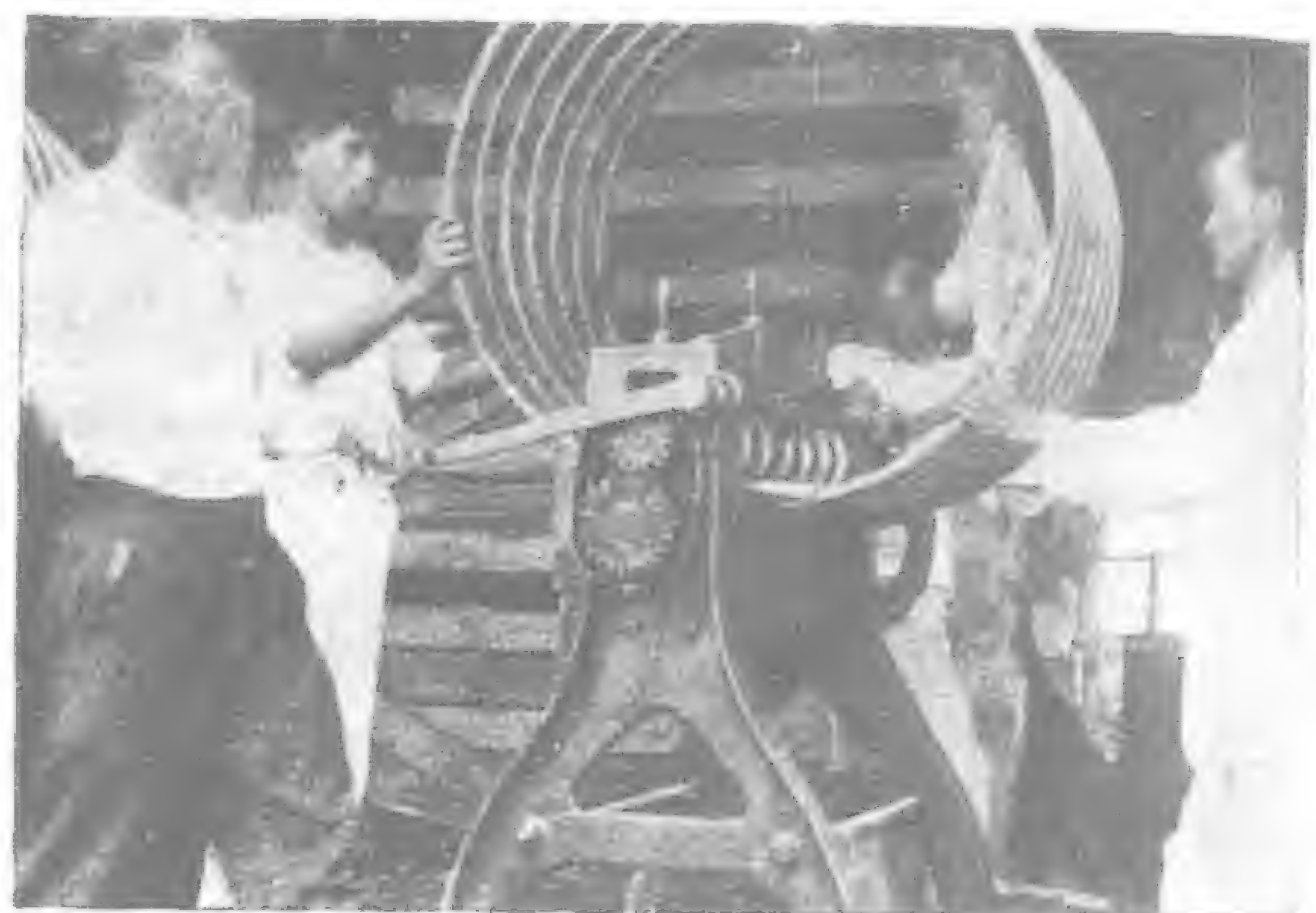
The Zamboanga Water Works System was initiated by Governor Carpenter, and carried out by Supervising Engineer H. F. Cameron, Provincial Engineer J. C. Cookingham, and Assistant Engineer W. A. Newton.

Lungkuan Iron Mine

It was recently reported that the Ministry of Agriculture and Commerce had discovered a valuable mine at Lungkuan, Chihli, and that a Chinese mining company would be formed for the exploitation and working of this mine. Now by a Mandate Mr. Lu Chung-yu, former Chinese Minister to Japan, and now president of the Hui-yeh Exchange Bank, has been appointed director general of this mine.



CURVED HY-RIB, SHOWING CONSTRUCTION OF "T" WITH INSIDE PLASTERED, ZAMBOANGA PIPE LINE



CURVING HY-RIB FOR USE IN ZAMBOANGA PIPE LINE



SETTLEMENT BASIN GATES, ZAMBOANGA PIPE LINE



SUSPENDED HY-RIB IN FORMS READY FOR POURING CONCRETE, ZAMBOANGA PIPE LINE



COMPLETED SECTION ON ZAMBOANGA PIPE LINE

ENGINEERING, FINANCIAL, AND INDUSTRIAL NEWS

RAILWAYS

Work on Manseibashi "L."—The work of connecting Tokyo Station and Manseibashi Station by an elevated railroad is nearing completion and it is expected that the cars will be running on this track by next September. The full connection with Ueno station may take some years. The construction has been considerably delayed by the war and the difficulty of obtaining shipments of the necessary materials. A new station is to be built at Kajimachi near the Bank of Japan.

Kinhan Bulletin.—Dr. C. C. Wong of the Peking-Hankow Railway is publishing a daily news sheet in which all affairs concerning the said line are printed for the information of the railway officials and employees.

Bolshevik Appointee for Chinese Eastern Railway.—The Chinese Eastern Railway was notified by the Bolshevik Government of the appointment of M. Gucha(?) to be Special Executive Officer of the Chinese Eastern Railway under date of February 20, and the public institutions in the Chinese Eastern Railway area and the servants of the railway were instructed to abide by his order on his arrival at Harbin.

M. Gucha was a private attached to the Railway Guard Brigade and later served as a clerk at the Harbin Station.

Siamese Railway Dividends.—The general meeting of the shareholders in the Paknam Railway Co., Ltd., took place on Friday, March 15. It was proposed to pay a final dividend of six per cent, making a total of 22 per cent for the year 1917, which is probably the largest ever paid on the present capital of the company.

No Siberian Mails.—Notice of the closing of the Siberian Mail route has been given by Mr. W. W. Ritchie, Postal Commissioner. It is announced that the Trans-Siberian Railway is no longer available for mails to Europe, Mongolia, and Sinkiang. Hereafter European mail will go by sea, Sinkiang mail via Kansu, and Mongolian mail by way of Kalgan.

South Manchuria Railway Traffic Returns.—The South Manchuria Railway Traffic returns for the month of January give the daily average of Y.121,323.70, being an increase by Y.37,219.66 on the corresponding month of last year, the particulars being as under:

Receipts	
Passenger	Y. 862,780.38
Goods	2,711,742.04
Warehouse	47,362.70
Miscellaneous	139,149.45

Total..... Y.3,761,034.57
Increase on corresponding month last year..... Y.1,153,809.38

In December last the Main Line figures showed a decrease by Y.39,871 and the Mukden-Antung figures an increase by Y.60,773. In the month of January, the total increase on the preceding year reached Y.1,153,809 at a

bound, which figures may be considered as very remarkable.

The aggregate traffic earnings from the beginning of the current fiscal year amounted to Y.27,292,767, being an increase by Y.5,787,175.

Amur Track Destroyed.—A telegram from a reliable source received at Changchun says that near Karinskaya, where the Amur Railway starts at about one hundred versts east of Chita on the Trans-Baikal Railway, the railway track has been destroyed.

On this account half the United States Railway Mission to Russia has had to be kept back.

SHIPPING

Siam's Enemy Ships.—Siam has allotted to the Allies the enemy ships seized when she declared war. The Yiam Samudh (ex Trautenfels) has already been lost according to a telegram the *Times* published recently.

Den Samudh (Deli), 726 tons, Siam. Pin Samudh (Samsen), 998 tons, Siam. Phan Samudh (Pitsanuloke), 1,267 tons, France. Thong Samudh (Patani), 1,086 tons, France. Yiam Samudh (Trautenfels), 2,932 tons, Great Britain. Laen Samudh (Landrastchieff), 1,012 tons, the United States. Kaeo Samudh (Petchaburi), 1,373 tons, the United States. Sri Samudh (Kohsi-Chang), 1,292 tons, Italy. Doen Samudh (Chiengmai), 1,080 tons, Italy.

New Honto Harbor.—A new harbor will be constructed at Honto on the western coast of Karafuto. The estimate for the work requiring Y.2,500,000 was passed by the Diet in 1916. The work will be completed in nine years, when Honto will be the only port in the island to be free of ice.

Cotabato P. I. First-Class Port.—A large dredge from the Bureau of Public Works in Manila is now en route to Cotabato. The mud bar at the mouth of the Rio Grande de Cotabato is to be cut out and the river channel dredged to a sufficient depth to permit the entrance of the large interisland vessels and their docking at the Cotabato wharf five miles up the river. This will put Cotabato back on the transportation map as a first-class port.

The mud taken from the river in dredging is to be used in raising the level of the town, especially the sites set apart for Government buildings. Cotabato is destined to be the most important port in Mindanao at a not very distant date and the dredging of the river will greatly aid its development.

FINANCE

China's Native Customs.—As a preparatory measure for the abolishment of likin (China's internal transportation tax) the Ministry of Finance has almost completed a survey of last year's actual returns. According to the figures, the provinces heard from

contributed as follows: Chihli, Tls. 325,000 (one tael was equivalent to \$79 gold); Shantung, Tls. 2,380,000; Honan, Tls. 2,690,000; Shansi, Tls. 3,219,000; Kiangsu, Tls. 3,112,000; Anhwei, Tls. 1,617,000; Chekiang, Tls. 3,617,000; Kiangsi, Tls. 2,311,000; Hupeh, Tls. 3,140,000; Hunan, Tls. 1,712,000; Shensi, Tls. 718,000; Kansu, Tls. 810,000; Fengtien, Tls. 2,514,000; and Heilungkiang, Tls. 10,000.

The abolition of likin will relieve the great strain felt by native industries in transporting their products, and China expects to recoup her loss in revenue by increasing import tariff, negotiations about which are now proceeding with foreign nations.

Kwantung Government Budget.—A supplementary estimate of the Local Administration Account for the fiscal year has been announced as under:

Receipts (Ordinary)	
Local receipts (Miscellaneous) ...	Y.408,513
Disbursements	
a) Ordinary	
Encouragement of industrial enterprises ...	16,878
Exchanges ...	Y.8,719
Investigations ...	8,159
Sanitary ...	17,387
Hospitals ...	8,302
Women's Hospitals Y.	687
Isolation Hospitals	1,000
Epidemic prevention	7,398
Construction and repairing (for slaughterhouses ...)	670
Operating expenses ...	49,974
Total..	Y.84,909
b) Extraordinary	
Repairing and public works ...	Y. 69,230
Encouragement of industrial enterprises ...	242,374
Grants ...	12,000
Total..	Y.323,604
Grand total ...	408,513

Under the head of the "Encouragement of industrial enterprises" are included funds for the South Manchuria Sugar Refining Co., the tussah silk manufacture, etc.

Hokkaido Company Gets Capital.—The Hokkaido Tanko Kisen Kaisha declared dividends of 8 per cent per annum at a semi-annual meeting of shareholders. It was decided at the same time to invest Y.4,000,000 more in the Hokkaido Steel Works, which the company supports in conjunction with the Mitsui Company. The Hokkaido Steel Works, with an increase of Y.8,000,000 in its capital, will enlarge its plant at Wanishi and try to turn out more of steel materials for the Nippon Steel Works at Muroran and other steel users.

MINES

Kweichow Coal and Steel.—Two fresh enterprises have been commenced in Hingichow coal and steel businesses. A new bituminous coal business has opened at Sa-u, in the district; and the product is brought on the street

by pack-horses. It is not a very excellent burning coal, but is usable.

The steel business is very commendable for country folk. They are producing at Lung-gwang, six catties per dollar, said to be about equal in durability to the steel imported through Canton. Steel is a big question, as Hing is one of the chief centers for stone-work in Kweichow, and chisels are much in requisition, and suitable steel very hard to obtain. Good steel in the district is therefore a boon.

Magnesite.—On the prospective formation of the South Manchuria Mining Company, it will act as sole sales agent for magnesite to be mined by the South Manchuria Railway Company, concessionaire, and will launch various industrial enterprises with magnesite for raw material.

Japan's Coal Trade.—The total output of coal in Japan in 1913 was 20,000,000 tons. Last year it rose to 25,660,000 tons and this year the production is estimated at 28,000,000 tons. As the estimate for last year, 27,000,000, was not realized, it is probable that this year the quantity mined will not exceed that figure, which represents a substantial advance on pre-war production, however.

Prices at Wakamatsu are still advancing, the latest average quotations being Y.12.90 for lump, Y.10.80 for mixed, and Y.11.30 for dust, being increases of Y.1.04, 88 sen, and 80 sen, respectively, on the quotations for December last.

Diamond Fields of Dutch Borneo.—Interested persons in Holland are directing attention to the diamond fields of Dutch Borneo, which, while known of for centuries, have never been developed, notwithstanding the Netherlands has in Amsterdam the greatest diamond-cutting industry in the world.

Interest in this subject has been aroused most particularly by reports that diamond mills are to be established at Birmingham, England, as soon as the war ends, and that British (African) rough diamonds (on which the Amsterdam industry is now entirely dependent) are to be diverted to their use.

No details of the possibilities in Borneo are made public, if known, except the statement of the most experienced man in the Amsterdam diamond industry (Mr. Henri Polak, president of the Netherlands Diamond Workers' Union and member of the First Chamber of the Dutch Parliament) that energetic development of the Borneo fields would yield important quantities of diamonds.

Korean Mineral Output.—Chosen's mineral output last year is valued at Y.24,081,127, which is a decline of Y.30,000 from the preceding year's mark. The falling-off is said apparently to be due to the decrease in gold yields; tungsten and some other sorts of mineral showing a sharp increase.

Penchiu Colliery.—The second smelting furnace recently installed in the compound of the Penchiu Colliery & Mining Co. puts out between 70 and 80 tons of pig iron a day. The first furnace was perhaps used a little more than discreetly. At all events, the fire-proof brick of the bottom was often found somewhat out of order, but has been restored to good form lately. A thorough repair will be applied by summer.

Pig iron has perceptibly strengthened and is quoted at Y.370 or so per ton at Osaka.

Coal and Iron in Hupeh.—A correspondent from Taiyeh (Hupeh province) writes to the *Central China Post* as follows:

Travelers between Hankow and Shanghai will no doubt have observed that great developments are taking place on the river bank below Shih Hui Yao. The Han Yen Ping Company is erecting extensive ironworks and for several months gangs of northern coolies have been busy preparing the site for the works and constructing a railway to join the line from the Taiyeh mines, which reaches the river bank at Shih Hui Yao. A large colony of Japanese is said to be already settled at the works. Naturally people have been attracted to the neighborhood by the prospect of trade, and what was not long ago merely a path between fields is now a busy street with well-built houses and shops on either side. Almost every site on this street has been built on and high prices are being asked for the few plots that remain undeveloped.

This is a district famous for minerals, but its vast wealth remains largely untouched. The colliery at Tan Shan Wan is said to be run at a loss and produces only enough coal blocks for its own use. All that can be bought there is coal dust. A new mine has been opened near to the railway at Hsia Lou, though at present worked only on a small scale.

The Hupeh Kuan Ch'ien Chuh have begun operations here. A couple of offices have been opened on the street, one for the transaction of business connected with copper mines and the other as headquarters for iron mines.

Coal Famine in Japan.—The cost of coal has risen further and even coal dealers are troubled. They complain that the railways are operating unsatisfactorily and that huge stocks are accumulated at coal fields, while in the market coal is unobtainable at normal cost.

The ruling prices of coal in the market are a few yen above the planes attained at the close of last year, causing much trouble to industrial workers. Lately silk reellers have passed a resolution that unless the Government takes some steps toward their relief the silk industry will suffer a great deal from the famine price of coal.

According to a coal dealer the reduced carrying facilities have made the situation so acute. At the Ibaraki and Fukushima mines anthracite and other qualities are held, but owing to the limited carrying capacity of the railways they are not available for Tokyo. In Kyushu mines more than 560,000 tons of coal are accumulated. Although at present the railway authorities are trying to send these stocks to industrial centers with all the means in their power, the results of their efforts will not be in evidence very soon, it is believed.

The Seoul Mining Company.—In November the mills on the Suan Concession treated 19,350 tons of ore and recovered Y.242,694.46. Development work was continued on the new ore bodies at Tul Mi Chung. In December 17,040 tons of ore returned Y.214,100.

South China Mines.—From the *Board of Trade Journal* for December 13 are taken the following notes on the mining industry in Kuangtung and Kuangsi, by Mr. R. S. Pratt, H. M. Vice-Consul at Canton:

The extraordinary demand for metals caused by the war has attracted attention to the mineral resources of China, the neglect of which has nowhere been more pronounced than in the two provinces of Kuangtung and Kuangsi. A certain impetus has, however, now been given to mining there which has caused foreign money to flow into the provinces.

Foreigners necessarily have had little to do directly with the actual exploitation of the deposits. Chinese syndicates of mushroom growth and instability have been formed by the dozen to snatch a hasty profit out of the high prices offering, but they all entered the field in a speculative spirit and the ignorance of the promoters, both of the technicalities of the subject and of the world's markets, in most cases led to their speedy downfall. The few who chanced on a rich and paying vein found themselves confronted with the inevitable official monopoly created *ad hoc*.

Under such circumstances it is not surprising that of real mining, in the proper sense of the word, there has been none. The surface of the deposits, whatever they are, is merely scratched, and the workings, which consist of gopher holes driven into the hillsides, are abandoned as soon as the lack of ventilation or the presence of water makes them unsafe. The real body of the ore is never reached at all. The coal, for instance, that finds a local market is of most inferior quality, but experts are satisfied of the existence of vast beds of excellent steam coal, which only require efficient methods and supervision to yield handsome profits.

TRADE

Manchuria Lumber Co.—The Manchuria Lumber Co. newly formed at Changchun had the first quarterly installment of its capital amounting to Y.500,000 paid in on January 15. It held the founders' general meeting on the 29th. In the articles of association the number of directors was increased from five to seven. A nominating committee elected the directorate with Mr. S. Nishiwaki for Managing Director.

Canadian Lumber.—The first shipment of lumber from Vancouver to the Orient left that port in January on a steamer of the Dollar Line and consisted of 300,000 feet cut at the new Dollar sawmill at Roche Point. It was lighted down the inlet to the Dollar dock.

Copper Cash.—The copper cash market about Tsinan (Shantung) has revived materially of late.

Demand for copper in the United States has suddenly risen, causing the market to stiffen a good deal. While it has not yet influenced the London market any, the general increase of copper consumption for warlike purposes by Great Britain, and France will probably respond susceptible to the American tone.

At Tsinan, copper cash had long remained depressed at about S. Y.15 until a few days ago when the first sign of reanimation began to show itself and the quotation rose by degrees up to S.Y.18. When the price reaches S.Y.19 or so, some quantity of copper cash is expected to appear on the market.

However, the flight of silver is unlikely to be checked or pressed down, and this will no doubt have the effect of oppressing the copper cash market more or less.

Japanese Expansion in Philippines.—An American contemporary states that in addition to active participation in the agricultural development of the Philippine Islands, Japanese capital is soon to enter the banking and insurance fields in the islands, arrangements having been completed for the establishment of a branch of the big Yokohama Specie Bank in Manila, while the Mitsui Bussan Kaisha is busily engaged in settling details with the insular insurance commissioner regarding the securities which must be deposited there by five Japanese insurance companies, handling marine and fire risks, for which it is now acting.

Japan's Export of Chlorate of Potash.

The export trade in chlorate of potash is unusually brisk at present. Before the outbreak of the war the imports exceeded the exports, but after the opening of hostilities the contrary was the case. In recent years, 4,000 tons were used on the Japanese market each year, but the output by various chemical factories and workshops now exceeds 8,000 tons annually. The output is chiefly shipped to Shantung province, Newchwang and other districts in China, as well as to Russia, India, and other quarters. A noteworthy fact is that orders have lately been received from the United States, which used to import from the the Scandinavia peninsula. The following table shows the exports during the first nine months of past year (in kin of 1.33 pounds).

January	Kin 80,475
February	25,988
March	197,128
April	142,095
May	188,953
June	238,466
July	349,557
August	346,140
September	556,669

Caustic Soda Works in Japan.

Formerly caustic soda was imported almost exclusively from Great Britain to the value of over Y.3,000,000 a year. Since the outbreak of the war, however, the import from the United States has increased, and American caustic soda has taken the place in Japan of British caustic soda. As a matter of fact, the American product accounted for 80 per cent of the total import of caustic soda last year. With the development of industries in this country the import of American caustic soda has been on the increase, but some time ago the U. S. Government prohibited the export of the chemical except under license. This has given an impetus to the manufacture of caustic soda in Japan. The present output is only sufficient to meet about 30 per cent of the total demand, 800,000 lbs. being produced monthly by the Nippon Seimi Kaisha, 300,000 each by the Kwanto Sanso and the Toyo Soda, 200,000 each by the Asahi Denka and the Osaka Soda, 150,000 by the Tokai Soda, and 50,000 by the Nippon Denki Kaisha. To encourage the domestic manufacture an arrangement has been made to reduce the cost of production. Hitherto the producers have obtained supplies of salt at Y.1.28 per 100 kin from the Nippon Salt Company, which holds the agency for the salt produced in Kwantung. This price has now been lowered to Y.1 with the approval of the Government Monopoly Bureau.

Chemical Co. Pays 140 Per Cent.

The Nippon Seimi Kaisha, manufacturers of sulphuric acid and many other drugs and chemicals, was expected to pay a dividend of 60 per cent instead of 80 per cent as in the previous term, but the company has now announced that a dividend will be paid at the rate of 140 per cent. The following statement of accounts has been published:

Net profit	Y. 746,600
Reserve for equalizing dividends ...	300,000
Amount brought forward, etc. ...	1,320,915
Total	Y.2,367,545
To Depreciation	Y. 10,000
Reserve for equalizing dividends ...	50,000
Bonuses	74,600
Pension fund	30,000
Dividend 140 per cent	1,400,000
Carried forward	802,454

It will be observed that whereas the net profit amounts to no more than Y.746,630, about twice this amount is to be distributed in dividends. However, the Nippon Seimi Kaisha has been most prosperous and it is desirable to distribute some of the money formerly brought forward, but it is rather

grotesque to deplete the reserve for equalizing dividends by paying a greatly increased dividend.

Nippon Dyestuff Company.—The factory for the production of sulphur dyestuffs belonging to the Nippon Dyestuff Producing Company, Ltd., was completed in November; but another factory for the general manufacture of coloring matters, now under construction, will not be completed before the spring of 1919. The company will receive a Government subsidy to the amount of Y.85,500, 8 per cent of the paid-up capital.

Japan Ships Vermicelli.—An order for 4,000 cases of Japanese vermicelli valued at Y.60,000 for exportation to England has recently been received in Japan, the first shipment, 200 cases, having left Kobe on February 13. This is the largest export order for the product, known as "somen," ever placed in Japan.

Formosa Sugar.—It is estimated that this year's yield of Formosan sugar will approximate 5,500,000 piculs.

Salt Refining.—Salt merchants of Liang-hwai have raised a capital of \$100,000 to start a salt refinery factory, in order to save the people from the consumption of the dirty salt which has hitherto been a fruitful source of various sicknesses. Their plans have been approved and encouraged by the Salt Commissioner of Liang-hwai.

Kwantung Salt.—Kwantung salt has begun to draw considerable attention lately. Its demand has been on the increase. A refinery has been founded close to the salt gardens at Pulantien.

As already reported, short labor and stiff freights have been the principal causes in Japan to raise the price of salt whilst it is in increasing request.

The Central Government thought of deriving a supply from the Kwantung Leased Territory and ordered a supply of 104,000,000 kin (or about 80,000 tons) a year. Dearth of tonnage, especially for a commodity of so cheap a price, has kept the transportation of salt difficult.

More orders have been given by the Central Government. The manufacturers concerned have tried the utmost to ship as much as possible. During December, only 10,200 tons could be sent off; in January little more than 2,000 tons were exported, yet leaving no hold space available for consignments for the South Seas or Vladivostok.

Malayan Rubber.—United States Consul-General Edwin N. Gunsaulus, Singapore, in the course of a report on rubber in British Malaya, states:

A striking feature connected with the rubber industry in the Malay Peninsula and other parts of the Far East is the constantly increasing influence of the United States concerning both prices and increased production, a situation which must be given the fullest recognition and consideration. All leading American rubber manufacturers are directly represented in this market, with principal offices in Singapore. Not only has there been an enormous increase in the purchases of crude rubber from the Malay Peninsula and the Dutch Indies by United States manufacturers during the past few years, but of late, considerable American capital has been invested in land and rubber plantations, both in British Malaya and the Dutch Islands, especially in Sumatra. The approximate amount of capital now invested in rubber production alone in British Malaya

is given at \$166,000,000, of which British capital represents \$160,000,000; United States, \$1,500,000; other, \$4,500,000.

Japan's Trade with China.—The official trade returns for last year of the Japan-China trade have been issued by the Finance Office, Tokyo, as under:

Exports: Y.289,157,000 Increase: Y.116,367,000
Imports: Y.112,620,000 Increase: Y. 19,331,000

The figures show that China is rapidly becoming the best market in the world for Japan.

Manchuria played an important part in Japan's foreign trade last year, as can be seen by the following returns:

Exports: Y.42,069,000 Increase: Y.19,519,000
Imports: Y.13,677,000 Increase: Y. 3,446,000.

The following is a table giving the chief Japanese exports to China in 1913 (that is, prior to the war):

	Hk. Tls.
Cotton yarn	32,128,433
Cotton fabrics	22,591,539
Sugar	9,157,756
Copper and copper ware	6,341,055
Coal	6,339,464
Matches	4,489,275
Marine products	4,242,390
Flour	2,714,391
Timber	2,401,276
Clothing and head and foot gears	2,050,036

There have been a number of Japanese articles which have found markets in China since the outbreak of the war.

The following is the table for 1917:

	Hk. Tls.
Enameled ironware	485,491
Empty kegs and boxes	451,841
Woolen yarn	379,913
Telegraphic and telephonic acces- sories	378,502
Lamps and accessories	365,596
Fresh fruits	361,623
Dyestuffs, face powder, etc.	284,340
Beds, table covers, etc.	283,297
Canvas	276,092
Paints and varnish, etc.	276,680

Asano Cement Company.—The half yearly report of the Asano Cement Co. shows that the company made a net profit of Y.1,203,651, which, with Y.95,989 brought forward from the previous half year, leaves Y.1,319,641 to be disposed of. This was done as follows: Reserve fund, Y.61,200; bonuses, Y.121,700; pension reserve, Y.10,000; fund for employees, Y.10,000; dividends (25 per cent per annum), Y.1,020,691; balance to next half year, Y.96,049.

Straits Settlements Trade.—The official return of imports and exports of the Straits Settlements for the quarter ended September 30 has been issued and shows appreciable advances in the imports and exports of the three Settlements. The figures for the quarter, as compared with the similar records of the third three months of 1916, are as follow:

	Third quarter 1917	Third quarter 1916
Singapore	\$138,944,793	\$108,297,716
Penang	34,649,631	29,786,774
Malacca	5,654,914	5,144,641
Total	\$179,249,338	\$143,229,131
Increase	\$36,020,207	

Exports

Singapore	\$124,470,497	\$89,810,659
Penang	36,640,928	27,363,236
Malacca... ..	10,710,446	9,192,895
Total	\$171,821,871	\$126,366,790
Increase	\$45,455,081	...

In imports, Singapore increased \$30,647,077; Penang, \$4,862,857; and Malacca, \$501,273; while in exports the increases were Singapore, \$34,659,838; Penang, \$9,277,692; and Malacca, \$1,517,551.

It should be pointed out that complete imports into and exports from Penang by rail are not obtainable for these quarterly returns.

Para rubber exported was: Singapore, 319,494 kikuls, Penang 34,266 pikuls, Malacca 15,178 pikuls—a total of 368,938 as against 246,114.

Tin Exports

The value of tin ore imported was \$21,128,822 as against \$17,812,718. There were exported 248,257 pikuls of tin, valued at \$28,195,587, as against 245,491 and \$20,871,841, respectively, in the 1916 quarter.

Increases in imports include coffee from 6,426 pikuls to 17,309; rice from 3,525,997 to 4,250,343 pikuls; sugar 454,945 to 1,217,985 pikuls; para rubber 246,114 to 368,338 pikuls; cotton goods, plain 748,796 to 831,615 pieces. There are decreases in spirits; copra, 472,876 pikuls to 330,304; lubricating oils, rattans, piece goods, 74,510 to 46,763 pieces; steel, 23,092 cwt. to 12,602; tin plates, 52,700 boxes to 18,750; cement, 106,324 to 92,042 casks.

In exports dried fish declined from 264,956 pikuls to 170,534; pineapples from 201,405 cases to 33,725; padi rose from 3,291,873 pikuls to 3,348,142; condensed milk decreased 6,000 cases; sugar shows from 278,073 to 843,049 pikuls; tin is 248,257 pikuls; plain cotton goods rise from 748,796 pieces to 831,615, with an increase in value of \$2,769,245 and \$4,251,799, respectively.

BANK AND COMPANY RETURNS

Shanghai Branch of Bank of Chosen.—The Bank of Chosen has kept a couple of its officials at Shanghai since 1916 to transact exchange and general banking business. It has now decided to found a branch office with Mr. M. Hashimoto (late Manager of the Dairen Branch) for Manager. He will be at his new post shortly and intends to open the new branch on April 1.

Specie Holdings.—Specie held at home and abroad by the Government and the Bank of Japan on January 15, in comparison to the end of last year, was as follows:

(In million yen)

	Jan. 15	End of	Increase
		Last Year	
Government	391	386	5
Bank of Japan ...	719	718	1
Total	1,110	1,104	6
At Home	461	461	—
Abroad	649	643	6
Total	1,110	1,104	6

Nosho Ginko Bankrupt.—The Tokyo Nosho Ginko, which had enjoyed at one time public confidence as evidenced by deposits amounting to several million yen, has been placed in bankruptcy, mainly due to fraudulent investments by Kinjiro Yamamoto, the bank's Manager. He has been prosecuted for making secret loans to certain stockbrokers to an amount of Y.1,300,000 without securities.

Y. S. B. at Rangoon.—The Yokohama Specie Bank is opening a branch at Rangoon.

The First Bank Returns.—The Dai-ichi Ginko held a general meeting January 26, and for one item, considered a change of the regulations necessitated by the opening of the trust business. The bank will report a net profit of Y.2,285,031.22 and declare dividends of 22 per cent for the expiring half year.

H. and K. Wharf Dividends.—The Directors of the Hongkong & Kowloon Wharf & Godown Co., Ltd., recommended at the annual meeting of shareholders, the following distribution of profits:

To pay a dividend of \$6.00 per share...	...	\$360,000.00
To pay a bonus of \$4.00 per share ...	...	240,000.00
To write off Launches, Lighters, Wharfs, etc.	...	136,545.42
To carry forward ...	...	275,163.20
		\$1,011,708.62

Mitsu Bishi Bank.—The settled accounts for the latter half of last year of the Mitsu Bishi Bank are shown in the following figures:

Net profits...	...	Y. 749,248.09
Brought over from the preceding term...	...	10,142,162.92
Total ... ..	...	Y.10,891,411.01
Reserve ... ..	...	Y.50,000.00
The amount carried forward to the next half year	...	Y.10,841,411.07

Salt Gabelle Decrease.—The net salt revenue paid in by the group of banks for 1917 was \$70,627,239, showing a decrease of \$1,813,310 as compared with 1916, but an increase of \$1,349,713 as compared with 1915.

All obligations secured by the salt revenue were fully met.

Hongkong Tramway Dividends.—The result of the year's working to audit, is as follows:

Gross Profit (after charging depreciation, etc.) ...	...	£51,148,11.1
Less:—Debenture Interest ... ..	...	£6,899,11.8.
Interim Dividend of 9% 7.312 10.0.	...	

£14,212. 1.8

36,936. 9.5

Brought forward from 1916 16,705. 14.11

Balance £53,642.4.4

The Directors now recommend the payment of a final Dividend at the rate of 12 per cent per annum, amounting to £11,375,00.00. (to be payable in April next at Exchange of 3s. Od—23.33 cents per share) leaving £42,267.04.04. to be carried forward.

A New Bank Record.—A phenomenal record in Japanese banking business was made on the occasion of the opening of the Fujita Bank of Osaka, January 10. On that day Yen 5,250,000 was deposited with the bank, which far surpasses previous figures on similar occasions, being considerably beyond the expectations of local bankers. This indicates the confidence commanded by the Fujitas and that the opening of the bank was most timely, coinciding with the period of general prosperity.

The Fujitas and the Sumitomos are recognized as the two most influential multimillion-

aires in western Japan. The well-known "Fojitagumi," the firm of the Fujitas, was founded by the late Denzaburo Fujita, father of the present Baron, the head of the family, whose name was almost idolized by the people of Osaka in his lifetime. The firm has hitherto limited its enterprises to mining, forestry, and agriculture, and last October placed its mining on a more enterprising basis, to keep pace with the recent expansion in Japan's trade and industry.

Banking, newly started with a capital of Y. 10,000,000 (Y. 5,000,000 paid up) forms the second of its activities and promises to be one of the biggest undertakings in Osaka. The bank is presided over by Baron Heitaro Fujita, whose name is as equally well known as his father's. The business of the bank is conducted by Mr. Kurataro Suzuki, managing director, formerly of the Bank of Japan, who studied banking at the London City and Midland Bank, other directors being Messrs. Hikosaburo Fujita, Nakasuke Saka, and Yotaro Takagi, and auditors Messrs. Tokujiro Fujita and Hanzo Fukano.

Bank of Chosen's Profits.—The net profit of the bank for the latter half of last year was Y.899,222.20, the balance of the previous term by Y.237,978.04 exclusive. In the profit and loss account submitted it is proposed to write off Y.240,000 of this sum to loss reserve, Y.20,000 to dividend equalization fund, Y.65,000 to social expenses and officers' bonuses, and Y.569,178.08 to dividends which represent 8 per cent per annum of the paid up capital. The residue of Y.293,022.16 is to be carried forward to next term.

The Exchange Bank of China.—The inauguration meeting of shareholders of the Exchange Bank of China, incorporated by Chinese and Japanese capitalists, was held recently at the residence of Mr. Lu Tsung-yu. Over 20 shareholders were present, representing 99,390 shareholders. After the election of directors, their recognition for initiating expenses was asked, which by the way did not quite reach Y. 20,000, as stipulated in the Articles of Association. Matters of opening the Bank on February 1, naming it "The Exchange Bank of China," and fixing the salaries of directors, were then decided upon and the meeting adjourned. The following persons were elected:

Mr. Lu Tsung-yu, President; Mr. T. Kakiuchi, Acting Director. Messrs. E. Ono, K. Yamanari, Y. Kimura, Tseng Yu-wan, Liu Yen, and Yao Yui, Directors.

Messrs. Wang Ko-min, Jen Feng-pao, Tsao Ju-lin, S. Hayakawa, K. Koyama, Auditors.

ENGINEERING

Tokyo's Roads.—Acting on their recent resolution to carry out a scheme of improvement on the roads in Tokyo, the city authorities have arrived at the following figures showing the actual extent of improvement required:—The total road area of the city is 2,500,000 tsubo (1 tsubo=3.95 sq. yd.) or 534,000 ken (1 ken=5.964 feet) in extension. Classified by their respective widths, roads over 6 ken wide measure 1,345,695 tsubo in area and 137,602 ken in length; those above eight ken are 1,111,208 tsubo and 99,637 ken; those above ten ken, 763,171 tsubo and 59,967 ken; and those above twelve ken, 558,849 tsubo and 39,765 ken. If improvement be made on all the roads above six ken wide on which the traffic of automobiles and other vehicles is greatest, the expenses involved will run up to about Y.20,000,000. Even if limited to the roads above eight ken, the improvements will require Y.12,000,000. The City Assembly will naturally turn to the aid of the National Treasury for attaining the end.